

Appendixes to the Final Report of Subsidence Investigations at the Rend Lake Site, Jefferson County, Illinois



Brenda B. Mehnert
Danny J. Van Roosendaal
Robert A. Bauer
Philip J. DeMaris
Nelson Kawamura

Illinois Mine Subsidence Research Program

Cooperating agencies

ILLINOIS STATE GEOLOGICAL SURVEY
Department of Natural Resources

BUREAU OF MINES
United States Department of the Interior

Open File Series 1997-7

ILLINOIS STATE GEOLOGICAL SURVEY
William W. Shilts, Chief
Natural Resources Building
615 East Peabody Drive
Champaign, IL 61820-6964



LIBRARY

Appendixes to the Final Report of Subsidence Investigations at the Rend Lake Site, Jefferson County, Illinois



Brenda B. Mehnert
Danny J. Van Roosendaal
Robert A. Bauer
Philip J. DeMaris
Nelson Kawamura

Illinois Mine Subsidence Research Program

Cooperating agencies

ILLINOIS STATE GEOLOGICAL SURVEY
Department of Natural Resources

BUREAU OF MINES
United States Department of the Interior

Open File Series 1997-7

ILLINOIS STATE GEOLOGICAL SURVEY
William W. Shilts, Chief
Natural Resources Building
615 East Peabody Drive
Champaign, IL 61820-6964

ILLINOIS STATE
GEOLOGICAL SURVEY
RECEIVED
FEB 05 1998

APPENDIXES

These appendixes contain data collected at the Jefferson County overburden monitoring site as part of the Illinois Mine Subsidence Research Program (IMSRP). This document is supplementary to the *Final Report of Subsidence Investigations at the Rend Lake Site, Jefferson County, Illinois* (IMSRP X). Surveys, calculations, logs, laboratory test results, measurements, and graphs are included here. The main report, IMSRP X, contains background information, data collection methods, and analysis of the results.

A	Total Station Data	1
B	Longitudinal Surveys and Subsidence Calculations	7
C	Transverse Surveys and Subsidence Calculations	20
D	Closures on Controls	53
E	Horizontal Strain Calculations	59
F	Presubsidence Geotechnical Core Log	64
G	Presubsidence Geophysical Logs	83
H	Postsubsidence Geophysical Logs	91
I	Rock Mechanics Laboratory Data	97
J	Split-Spoon Sample Descriptions and Soil Lab Test	99
K	Data and Hydrographs of Drift and Bedrock Wells	101
L	Sondex Data	116

The complete reference to IMSRP X is as follows:

Mehnert, B.B., D.J. Van Rosendaal, R.A. Bauer, P.J. DeMaris, and N. Kawamura, 1997, Final Report of Subsidence Investigations at the Rend Lake Site, Jefferson County, Illinois: Illinois State Geological Survey, Illinois Mine Subsidence Research Program X, 38 p.



APPENDIX A Total Station Data

JEFFERSON COUNTY
TOTAL STATION DATA

JUNE 30, 1988 1:05 PM

STATION	NORTHING FEET	EASTING FEET	ELEVATION FEET
C0001	547761.524	301771.236	437.200
C0002	547758.092	301523.452	435.830
C0003	546652.296	302895.519	433.014
C0004	546352.435	303194.289	433.652
0100	546789.063	302775.919	432.510
0101	546753.996	302776.355	431.145
0102	546719.295	302776.090	430.185
0103	546694.087	302776.289	431.587
0104	546649.399	302775.374	432.960
0105	546609.562	302775.213	432.552
0106	546579.978	302775.918	433.008
0107	546545.175	302775.058	433.920
0108	546509.836	302773.979	434.501
0109	546475.280	302772.087	434.033
0110	546440.293	302772.393	433.631
0111	546405.470	302771.401	432.807
0112	546334.662	302754.348	432.894
0113	546299.771	302754.674	433.889
0114	546264.793	302755.633	434.587
0115	546229.894	302756.221	434.848
0116	546194.171	302756.568	435.042
0117	546159.753	302758.064	434.875
0118	546124.545	302758.366	434.330
0119	546089.439	302759.210	433.099
0120	546054.655	302759.507	432.596
0121	546019.475	302760.199	432.643
0122	545984.854	302760.836	433.785
0123	545949.692	302761.195	434.808
0124	545914.985	302761.821	435.105
0125	545879.627	302763.040	435.228
0126	545844.817	302763.863	435.306
0127	545809.670	302764.811	436.050
0128	545774.917	302765.529	435.448
0129	545739.685	302766.351	435.003
0130	545705.055	302767.267	435.058
0131	545669.792	302767.967	435.353
0132	545635.007	302768.675	435.053
0133	545599.819	302769.210	434.397
0134	546193.996	302792.200	434.912
0135	546194.170	302827.265	434.896
0136	546193.395	302862.079	435.077
0137	546193.579	302900.150	434.530
0138	546193.332	302933.117	434.678
0139	546192.607	302968.241	434.304
0140	546192.210	303003.125	433.963
0141	546192.139	303038.155	433.248
0142	546191.890	303073.649	433.005
0143	546191.861	303108.585	432.034
0144	546191.903	303143.517	430.654
0145	546192.112	303178.423	430.876
0146	546191.466	303248.618	432.424
0147	546191.236	303318.173	433.290
0148	546190.309	303388.555	432.099
0149	546189.218	303458.023	429.889
0150	546188.278	303528.301	428.337
0151	546187.731	303597.850	427.621
0152	546186.824	303668.165	427.196
0153	546186.386	303738.365	426.775
0154	546185.460	303808.190	425.309
0155	546185.121	303877.774	424.226
0156	546184.607	303945.746	424.212
0157	546184.106	304016.758	423.136
0158	546183.438	304086.821	422.621
P200	547758.227	301530.269	436.876
P201	547764.736	301772.392	438.192
P202	546194.219	302758.425	435.424
P203	545994.422	302761.223	433.646
P204	545794.508	302765.234	436.102

JEFFERSON COUNTY
TOTAL STATION DATA

AUGUST 29, 1988 4:47 PM

STATION	NORTHING FEET	EASTING FEET	ELEVATION FEET
C001	547761.524	301771.236	437.200
C002	547758.092	301523.452	425.830
C003	546652.154	302895.461	433.006
C004	546351.489	303194.107	431.489
0100	546788.943	302775.853	432.537
0101	546753.870	302776.291	431.168
0102	546719.155	302776.015	430.206
0103	546683.960	302776.227	431.600
0104	546649.257	302775.314	432.972
0105	546609.420	302775.175	432.558
0106	546579.852	302775.856	433.007
0107	546545.033	302775.000	433.918
0108	546509.700	302773.931	434.488
0109	546475.156	302772.013	433.990
0110	546440.181	302772.341	433.609
0111	546405.355	302771.339	432.762
0112	546334.539	302754.337	432.837
0113	546299.682	302754.668	433.786
0114	546264.664	302755.621	434.460
0115	546229.762	302756.246	434.724
0116	546194.051	302756.597	434.869
0117	546159.654	302758.084	434.737
0118	546124.449	302758.385	434.184
0119	546089.347	302759.222	432.931
0120	546054.584	302759.499	432.425
0121	546019.397	302760.218	432.480
0122	545984.749	302760.878	433.646
0123	545949.647	302761.199	434.683
0124	545914.887	302761.828	434.969
0125	545879.527	302763.068	435.151
0126	545844.736	302763.853	435.252
0127	545809.568	302764.824	435.990
0128	545774.825	302765.512	435.397
0129	545739.602	302766.351	434.945
0130	545704.976	302767.235	435.018
0131	545669.702	302767.984	435.283
0132	545634.927	302768.689	435.023
0133	545599.735	302769.202	434.381
0134	546193.886	302792.216	434.796
0135	546194.065	302827.343	434.653
0136	546193.322	302862.263	434.535
0137	546193.507	302900.457	433.317
0138	546193.224	302933.428	432.596
0139	546192.517	302968.418	431.405
0140	546192.100	303003.134	430.649
0141	546192.045	303038.224	429.555
0142	546191.821	303073.692	428.304
0143	546191.773	303108.417	426.944
0144	546191.807	303143.220	425.578
0145	546192.009	303178.089	425.783
0146	546191.370	303248.272	427.206
0147	546191.117	303317.771	428.171
0148	546190.192	303388.184	427.134
0149	546189.081	303457.723	424.748
0150	546188.130	303527.988	423.143
0151	546187.514	303597.557	422.499
0152	546186.624	303667.907	422.042
0153	546186.213	303738.130	421.631
0154	546185.291	303807.932	420.230
0155	546184.925	303877.410	419.312
0156	546184.490	303945.324	419.649
0157	546183.941	304016.250	418.497
0158	546183.302	304086.329	417.945
P202	546194.134	302758.460	435.298
P203	545994.348	302761.253	433.508
P204	545794.427	302765.261	436.042
P300	545796.975	302744.733	435.429
P301	546198.025	302751.740	435.586
W3333	546454.194	302673.186	435.289

JEFFERSON COUNTY
TOTAL STATION DATA

DECEMBER 09, 1988 12:05 PM

STATION	NORTHING FEET	EASTING FEET	ELEVATION FEET
C0001	547761.524	301771.236	437.200
C0002	547758.092	301523.452	435.830
0076	546997.419	301821.414	438.255
0077	546991.965	301887.559	438.261
0078	546990.721	301902.218	437.823
P302	547195.607	301843.502	441.055
P303	547049.333	301839.595	440.540
P304	547033.532	301839.648	439.960
P305	547014.715	301838.196	439.285
P350	546995.530	301841.796	438.922
T400	547195.833	301853.472	441.486
T401	546993.048	301872.566	438.809
I500	546994.810	301857.014	438.994

JEFFERSON COUNTY
TOTAL STATION DATA

MARCH 24, 1989 3:59 PM

STATION	NORTHING FEET	EASTING FEET	ELEVATION FEET
C0001	547761.524	301771.236	437.200
C0002	547758.092	301523.452	435.830
C0003	546652.624	302895.429	431.880
C0004	546351.848	303193.636	430.085
C0005	547710.294	302638.953	419.794
0079	547520.246	302794.444	418.778
0080	547486.225	302794.812	418.566
0081	547451.492	302795.090	418.742
0082	547416.880	302794.991	418.386
0083	547381.977	302795.969	418.358
0084	547346.926	302797.281	418.770
0085	547312.050	302796.377	420.626
0086	547277.397	302794.236	425.432
0087	547243.126	302793.791	431.688
0088	547208.023	302792.723	433.454
0089	547171.721	302791.338	432.078
0090	547137.085	302789.659	429.916
0091	547102.740	302787.977	428.756
0092	547068.154	302786.031	427.845
0083	547033.447	302784.991	427.447
0094	546998.594	302783.831	427.117
0095	546963.888	302782.479	425.865
0096	546929.289	302781.219	425.091
0097	546894.711	302779.792	425.154
0098	546860.128	302778.459	426.862
0099	546824.776	302777.483	430.406
0100	546789.548	302775.970	430.862
0101	546754.359	302776.376	429.688
0102	546719.632	302776.042	428.843
0103	546684.392	302776.267	430.268
0104	546649.744	302775.324	431.678
0105	546609.890	302775.177	431.272
0106	546580.301	302775.834	431.742
0107	546545.475	302774.907	432.648
0108	546510.092	302773.854	433.176
0109	546475.580	302771.947	432.629
0110	546440.546	302772.283	432.172
0111	546405.253	302771.291	431.851
0116	546194.577	302756.359	428.351
0122	545985.367	302760.820	431.657
0123	545950.214	302761.164	432.818
0124	545915.413	302761.822	433.194
0125	545880.040	302763.054	433.464
0126	545845.215	302763.870	433.595
0127	545810.049	302764.847	434.393
0128	545775.280	302765.555	433.786
0129	545740.050	302766.372	433.368
0130	545705.463	302767.315	433.493
0131	545670.151	302768.022	433.763
0132	545635.377	302768.743	433.557
0133	545600.216	302769.243	432.919
P202	546194.698	302758.016	428.860
P203	545994.996	302761.098	431.518
P204	545794.810	302765.067	434.560
P300	545797.526	302744.562	433.887
P301	546198.472	302751.335	429.196

JEFFERSON COUNTY
TOTAL STATION DATA

JULY 27, 1990

STATION	NORTHING FEET	EASTING FEET	ELEVATION FEET
C0001	547761.524	301771.236	437.200
C0002	547758.092	301523.452	435.830
TEMPORARY STATION	546983.782	302582.752	428.689
0088	547207.846	302792.636	433.935
0089	547171.519	302791.234	432.490
0090	547136.918	302789.581	430.172
0091	547102.587	302787.855	428.953
0092	547068.042	302785.976	428.048
0093	547033.347	302784.893	427.665
0094	546998.481	302783.753	427.319
0095	546963.789	302782.403	426.087
0097	546894.550	302779.693	425.351
0099	546824.657	302777.375	430.547
0100	546789.416	302775.850	430.994
0101	546754.297	302776.275	429.833
0102	546719.529	302775.981	428.982
0103	546684.318	302776.099	430.418
0104	546649.644	302775.218	431.828
0105	546609.762	302775.032	431.440
POST PIEZOMETER	547096.063	301680.496	437.805
P302	547194.369	301843.367	439.337
P303	547049.159	301839.693	433.994
P304	547033.435	301839.645	433.387
P305	547014.454	301838.105	432.609
P350	546995.518	301841.734	432.207
T400	547194.542	301852.862	439.900
T401	546993.386	301872.789	432.229
I500	546994.801	301857.038	432.373

APPENDIX B Longitudinal Surveys and Subsidence Calculations

MONUMENT ELEVATIONS AND ELEVATION CHANGES FROM BASELINE PERFORMED 6/30/88
LONGITUDINAL MONUMENT LINE OVER PANEL 3

MON #	BASELINE 6/30/88		8/9/88		8/11/88		8/17/88		8/31/88	
	ELEV. FEET		ELEV. FEET	SUBS. FEET	ELEV. FEET	SUBS. FEET	ELEV. FEET	SUBS. FEET	ELEV. FEET	SUBS. FEET
CL Panel 3	3									
116	435.042	435.0420	0.0000	0.0000	435.0420	0.0000	435.0420	0.0000	434.7601	-0.2819
134	434.912	434.9140	0.0020	0.0652	434.9772	0.0652	434.9710	0.0590	434.6166	-0.2954
135	434.896	434.8862	-0.0098	0.0455	434.9415	0.0455	434.9348	0.0388	434.3971	-0.4989
136	435.077	435.0716	-0.0054	0.0513	435.1283	0.0513	435.1215	0.0445	434.0834	-0.9936
137	434.53	434.5160	-0.0140	0.0415	434.5715	0.0415	434.5651	0.0351	432.6086	-1.9214
138	434.678	434.6517	-0.0263	0.0319	434.7099	0.0319	434.6958	0.0178	431.7338	-2.9442
139	434.304	434.2767	-0.0273	0.0241	434.3281	0.0241	434.3179	0.0139	430.6307	-3.6733
140	433.963	433.9277	-0.0353	0.0192	433.9822	0.0192	433.9687	0.0057	430.0627	-3.9003
141	433.248	433.2225	-0.0255	0.0280	433.2760	0.0280	433.2471	-0.0009	429.1285	-4.1195
142	433.005	432.9794	-0.0256	0.0186	433.0236	0.0186	432.9833	-0.0217	428.0219	-4.9831
143	432.034	432.0035	-0.0305	0.0211	432.0551	0.0211	431.9928	-0.0412	426.7391	-5.2949
144	430.654	430.6159	-0.0381	-0.0014	430.6526	-0.0014	430.5666	-0.0874	425.4235	-5.2305
145	430.876	430.8381	-0.0379	-0.0013	430.8747	-0.0013	430.7387	-0.1373	425.6515	-5.2245
146	432.424	432.1645	-0.2595	-0.2127	432.2113	-0.2127	432.0257	-0.3983	427.1301	-5.2939
147	433.29	433.1602	-0.1298	-0.1196	433.1704	-0.1196	432.1138	-1.1762	428.1088	-5.1812
148	432.099	431.8841	-0.2149	-0.2896	431.8094	-0.2896	429.7221	-2.3769	427.0961	-5.0029
149	429.889	429.5145	-0.3745	-1.3109	428.5781	-1.3109	426.0786	-3.8104	424.7483	-5.1407
150	428.337	427.3387	-0.9983	-3.0162	425.3208	-3.0162	423.8289	-4.5081	423.1568	-5.1802
151	427.621	425.1837	-2.4373	-3.9751	423.6459	-3.9751	422.9035	-4.7175	422.4993	-5.1217
152	427.196	423.4237	-3.7723	-4.4395	422.7565	-4.4395	422.3665	-4.8295	422.1026	-5.0934
153	426.775	422.3510	-4.4240	-4.6913	422.0837	-4.6913	421.8760	-4.8990	421.6848	-5.0902
154	425.309	420.5834	-4.7256	-4.7949	420.5141	-4.7949	420.4026	-4.9064	420.2595	-5.0495
155	424.226	419.4984	-4.7276	-4.7178	419.5082	-4.7178	419.4471	-4.7789	419.3278	-4.8982
156	424.212	419.7375	-4.4745	-4.4322	419.7798	-4.4322	419.7433	-4.4687	419.6395	-4.5725
157	423.136	418.5588	-4.5772	-4.4909	418.6451	-4.4909	418.6244	-4.5116	418.5296	-4.6064
158	422.621	418.0016	-4.6194	-4.5469	418.0741	-4.5469	418.0607	-4.5603	417.9718	-4.6492

MONUMENT ELEVATIONS AND ELEVATION CHANGES FROM BASELINE PERFORMED 6/30/88
LONGITUDINAL MONUMENT LINE OVER PANEL 3

MON #	9/1/88 ELEV. FEET	9/1/88 SUBS. FEET	9/6/88 ELEV. FEET	9/6/88 SUBS. FEET	9/7/88 ELEV. FEET	9/7/88 SUBS. FEET	9/8/88 ELEV. FEET	9/8/88 SUBS. FEET	MON #
3	432.9970		432.997		432.9970		432.9970		
CL Panel 3	434.7361	-0.3059	434.2127	-0.8293	433.9238	-1.1182	432.5366	-2.5054	116
134	434.5772	-0.3348	433.2170	-1.6950	432.7955	-2.1165	431.5359	-3.3761	134
135	434.3146	-0.5814	432.0939	-2.8021	431.6044	-3.2916	430.7412	-4.1548	135
136	433.8944	-1.1826	431.3340	-3.7430	430.9437	-4.1333	430.4428	-4.6342	136
137	432.2833	-2.2467	430.0386	-4.4914	429.7981	-4.7319	429.4864	-5.0436	137
138	431.4186	-3.2594	429.8059	-4.8721	429.6466	-5.0314	429.4334	-5.2446	138
139	430.3917	-3.9123	429.3578	-4.9462	429.2459	-5.0581	429.1004	-5.2036	139
140	429.8819	-4.0811	429.0914	-4.8716	429.0282	-4.9348	428.9147	-5.0483	140
141	428.9967	-4.2513	428.4201	-4.8279	428.3733	-4.8747	428.2940	-4.9540	141
142	427.9335	-5.0715	427.5336	-5.4714	427.4929	-5.5121	427.4313	-5.5737	142
143	426.6698	-5.3642	426.3843	-5.6497	426.3603	-5.6737	426.3059	-5.7281	143
144	425.3702	-5.2838	425.1591	-5.4949	425.1274	-5.5266	425.0936	-5.5604	144
145	425.6119	-5.2641	425.4553	-5.4207	425.4298	-5.4462	425.3959	-5.4801	145
146	427.1120	-5.3120	427.0181	-5.4059	426.9920	-5.4320	426.9709	-5.4531	146
147	428.0994	-5.1906	428.0470	-5.2430	428.0180	-5.2720	427.9980	-5.2920	147
148	427.0889	-5.0101	427.0586	-5.0404	427.0200	-5.0790	427.0030	-5.0960	148
149	424.7112	-5.1778	424.6919	-5.1971	424.6569	-5.2321	424.6415	-5.2475	149
150	423.1211	-5.2159	423.1085	-5.2285	423.0747	-5.2623	423.0604	-5.2766	150
151	422.4668	-5.1542	422.4591	-5.1619	422.4314	-5.1896	422.4179	-5.2031	151
152	422.0690	-5.1270	422.0711	-5.1249	422.0468	-5.1492	422.0237	-5.1723	152
153	421.6440	-5.1310	421.6528	-5.1222	421.6237	-5.1513	421.6094	-5.1656	153
154	420.2116	-5.0974	420.2263	-5.0827	420.1965	-5.1125	420.1806	-5.1284	154
155	419.2830	-4.9430	419.2984	-4.9276	419.2761	-4.9499	419.2549	-4.9711	155
156	419.5952	-4.6168	419.6071	-4.6049	419.5901	-4.6219	419.5670	-4.6450	156
157	418.4882	-4.6478	418.5030	-4.6330	418.4802	-4.6558	418.4636	-4.6724	157
158	417.9339	-4.6871	417.9412	-4.6798	417.9344	-4.6866	417.9130	-4.7080	158

MONUMENT ELEVATIONS AND ELEVATION CHANGES FROM BASELINE PERFORMED 6/30/88
LONGITUDINAL MONUMENT LINE OVER PANEL 3

MON #	9/9/88 ELEV. FEET	9/9/88 SUBS. FEET	9/23/88 ELEV. FEET	9/23/88 SUBS. FEET	9/27/88 ELEV. FEET	9/27/88 SUBS. FEET	10/11/88 ELEV. FEET	10/11/88 SUBS. FEET	MON #
CL Panel 3 116	432.9448								CL Panel 3 116
134	431.4255	-3.6165	429.2404	-5.8016	429.1932	-5.8488	429.0859	-5.9561	134
135	430.7119	-4.2001	429.1678	-5.7442	429.1215	-5.7905	429.0056	-5.9064	135
136	430.2229	-4.6731	429.1380	-5.7580	429.0939	-5.8021	428.9844	-5.9116	136
137	430.0795	-4.9975	429.2871	-5.7899	429.2393	-5.8377	429.1341	-5.9429	137
138	429.2221	-5.3079	428.6343	-5.8957	428.5919	-5.9381	428.4868	-6.0432	138
139	429.2286	-5.4494	428.7602	-5.9178	428.7216	-5.9564	428.6164	-6.0616	139
140	428.9380	-5.3660	428.5562	-5.7478	428.5288	-5.7752	428.4294	-5.8746	140
141	428.7899	-5.1731	428.4738	-5.4892	428.4479	-5.5151	428.3490	-5.6140	141
142	428.1930	-5.0550	427.9262	-5.3218	427.9024	-5.3456	427.8057	-5.4423	142
143	427.3440	-5.6610	427.1236	-5.8814	427.1043	-5.9007	426.9978	-6.0072	143
144	426.2313	-5.8027	426.0373	-5.9967	426.0247	-6.0093	425.9162	-6.1178	144
145	425.0273	-5.6267	424.8520	-5.8020	424.8365	-5.8175	424.7342	-5.9198	145
146	425.3346	-5.5414	425.1850	-5.6910	425.1655	-5.7105	425.0684	-5.8076	146
147	426.9160	-5.5080	426.7882	-5.6358	426.7687	-5.6553	426.6805	-5.7435	147
148	427.9448	-5.3452	427.8461	-5.4439	427.8279	-5.4621	427.7450	-5.5450	148
149	426.9569	-5.1421	426.8816	-5.2174	426.8665	-5.2325	426.7621	-5.3369	149
150	424.5942	-5.2948	424.5399	-5.3491	424.5308	-5.3582	424.4108	-5.4782	150
151	423.0168	-5.3202	422.9667	-5.3703	422.9520	-5.3850	422.8470	-5.4900	151
152	422.3714	-5.2496	422.3351	-5.2859	422.3159	-5.3051	422.2263	-5.3947	152
153	421.9846	-5.2114	421.9582	-5.2378	421.9247	-5.2713	421.8607	-5.3353	153
154	421.5700	-5.2050	421.5545	-5.2205	421.5348	-5.2402	421.4472	-5.3278	154
155	420.1419	-5.1671	420.1328	-5.1762	420.1143	-5.1947	420.0251	-5.2839	155
156	419.2183	-5.0077	419.2165	-5.0095	419.1873	-5.0387	419.1205	-5.1055	156
157	419.5339	-4.6781	419.5331	-4.6789	419.5001	-4.7119	419.4439	-4.7681	157
158	418.4323	-4.7037	418.4322	-4.7038	418.4062	-4.7298	418.3591	-4.7769	158
	417.8761	-4.7449	417.8828	-4.7382	417.8548	-4.7662	417.8181	-4.8029	

Site: Panel 3
Date: 8/9/88
Instrument used: NA-2 WILD to level
"Longitudinal Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
116	1.31149			1.31149	4.30274	435.0420
134	1.33284			1.33284	4.37278	434.9140
135	1.3413			1.34130	4.40054	434.8862
136	1.28479			1.28479	4.21514	435.0716
137	1.45415			1.45415	4.77078	434.5160
138	1.41278			1.41278	4.63505	434.6517
139	1.52708			1.52708	5.01004	434.2767
140	1.63345			1.63345	5.35902	433.9277
141	1.84841			1.84841	6.06426	433.2225
142	1.92249			1.92249	6.30731	432.9794
143	2.21997			2.21997	7.28328	432.0035
144	2.64289			2.64289	8.67079	430.6159
145	2.57519	1.90019	0.67500	2.57519	8.44868	430.8381
146	1.49588			2.17088	7.12222	432.1645
147	1.19238			1.86738	6.12650	433.1602
148	1.58134			2.25634	7.40260	431.8841
149	2.30361	0.9928	1.31081	2.97861	9.77222	429.5145
150	2.96681	1.65998	1.30683	3.64181	11.94805	427.3387
151	2.31484	1.30882		4.29866	14.10304	425.1837
152	2.85128			4.83510	15.86300	423.4237
153	3.17826	2.11141	1.06685	5.16208	16.93575	422.3510
154	3.71704	2.64241	1.07463	5.70086	18.70338	420.5834
155	2.97701	1.07074		6.03157	19.78837	419.4984
156	2.90412			5.95868	19.54924	419.7375
157	3.26338			6.31794	20.72790	418.5588
158	3.43323			6.48779	21.28514	418.0016

no closure

Site: Panel 3

Date: 8/11/88

Instrument used: NA-2 WILD to level

"Longitudinal Monument Line"

MON #	ROD READING				CORRECTED ELEV. FEET
				METERS	FEET
116	1.09259			1.09259	3.58457
134	1.11235			1.11235	3.64940
135	1.12323			1.12323	3.68509
136	1.06628			1.06628	3.49825
137	1.23599			1.23599	4.05504
138	1.19381			1.19381	3.91665
139	1.31018			1.31018	4.29844
140	1.41562			1.41562	4.64437
141	1.63088			1.63088	5.35059
142	1.70782			1.70782	5.60302
143	2.00302			2.00302	6.57151
144	2.4305			2.43050	7.97398
145	2.36281			2.36281	7.75191
146	1.95541	1.27236	0.68305	1.95541	6.41531
147	1.66305	1.03107	0.63198	1.66305	5.45613
148	1.44592			2.07790	6.81717
149	2.43082			3.06280	10.04843
150	3.42366			4.05564	13.30574
151	3.93419	1.74092	2.19327	4.56617	14.98069
152	2.01202			4.83727	15.87012
153	2.21709			5.04234	16.54291
154	2.69549			5.52074	18.11244
155	3.00211	3.00318	-0.00107	5.82736	19.11840
156	2.92038			5.74456	18.84675
157	3.26624			6.09042	19.98145
158	3.4403			6.26448	20.55251

no closure

Site: Panel 3
Date: 8/17/88
Instrument used: NA-2 WILD to level
"Longitudinal Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
116	1.2934			1.29340	4.24339	435.0420
134	1.31504			1.31504	4.31438	434.9710
135	1.32606			1.32606	4.35054	434.9348
136	1.26918			1.26918	4.16393	435.1215
137	1.43875			1.43875	4.72025	434.5651
138	1.39893			1.39893	4.58961	434.6958
139	1.5141			1.51410	4.96746	434.3179
140	1.62055			1.62055	5.31670	433.9687
141	1.84048	1.67542	0.16506	1.84048	6.03825	433.2471
142	1.75583			1.92089	6.30206	432.9833
143	2.05775			2.22281	7.29260	431.9928
144	2.49246			2.65752	8.71879	430.5666
145	2.44			2.60506	8.54668	430.7387
146	2.04771	1.54809	0.49962	2.21277	7.25966	432.0257
147	1.52125			2.18593	7.17160	432.1138
148	2.25025			2.91493	9.56330	429.7221
149	3.36081	1.61179	1.74902	4.02549	13.20683	426.0786
150	2.2975			4.71120	15.45650	423.8289
151	2.57955			4.99325	16.38185	422.9035
152	2.74325			5.15695	16.91892	422.3665
153	2.89274	1.50328	1.38946	5.30644	17.40937	421.8760
154	1.95238			5.75554	18.88278	420.4026
155	2.24363			6.04679	19.83831	419.4471
156	2.15335			5.95651	19.54212	419.7433
157	2.4944			6.29756	20.66103	418.6244
158	2.66619			6.46935	21.22464	418.0607

no closure

Site: Panel 3
Date: 8/31/88
Instrument used: NA-2 WILD to level
"Longitudinal Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.79542			1.79542	5.89041	432.9970
116	1.25803			1.25803	4.12734	434.7601
134	1.30175			1.30175	4.27078	434.6166
135	1.36865			1.36865	4.49027	434.3971
136	1.46429			1.46429	4.80404	434.0834
137	1.91382			1.91382	6.27886	432.6086
138	2.18045			2.18045	7.15362	431.7338
139	2.51669			2.51669	8.25676	430.6307
140	2.6898			2.68980	8.82470	430.0627
141	2.97455	2.16919	0.80536	2.97455	9.75890	429.1285
142	2.50649			3.31185	10.86552	428.0219
143	2.8975			3.70286	12.14834	426.7391
144	3.29848			4.10384	13.46388	425.4235
145	3.229			4.03436	13.23593	425.6515
146	2.7783			3.58366	11.75727	427.1301
147	2.48			3.28536	10.77861	428.1088
148	2.78869	1.0223	1.76639	3.59405	11.79136	427.0961
149	1.73791			4.30966	14.13913	424.7483
150	2.22301			4.79476	15.73065	423.1568
151	2.4234			4.99515	16.38809	422.4993
152	2.54432			5.11607	16.78480	422.1026
153	2.67168			5.24343	17.20265	421.6848
154	3.10611	2.05771	1.04840	5.67786	18.62792	420.2595
155	2.3417			5.96185	19.55964	419.3278
156	2.24668			5.86683	19.24790	419.6395
157	2.58499			6.20514	20.35782	418.5296
158	2.755			6.37515	20.91559	417.9718

no closure

Site: Panel 3
Date: 9/1/88
Instrument used: NA-2 WILD to level
"Longitudinal Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.7389			1.73890	5.70498	432.9970
116	1.20882			1.20882	3.96590	434.7361
134	1.25725			1.25725	4.12479	434.5772
135	1.33728			1.33728	4.38735	434.3146
136	1.46536			1.46536	4.80755	433.8944
137	1.95645			1.95645	6.41872	432.2833
138	2.22			2.22000	7.28338	431.4186
139	2.53302			2.53302	8.31033	430.3917
140	2.68838			2.68838	8.82004	429.8819
141	2.95822	2.38565	0.57347	2.95822	9.70533	428.9967
142	2.7088			3.28227	10.76846	427.9335
143	3.09399			3.66746	12.03219	426.6698
144	3.49011			4.06358	13.33178	425.3702
145	3.41644			3.98991	13.09008	425.6119
146	2.9592			3.53267	11.58997	427.1120
147	2.65825			3.23172	10.60261	428.0994
148	2.96624	1.5827	1.38444	3.53971	11.61307	427.0889
149	2.30655			4.26445	13.99082	424.7112
150	2.79122			4.74912	15.58092	423.1211
151	2.99065			4.94855	16.23521	422.4668
152	3.11188	1.46705	1.64573	5.06978	16.63294	422.0690
153	1.59571			5.19934	17.05799	421.6440
154	2.03231			5.63594	18.49039	420.2116
155	2.31536			5.91899	19.41902	419.2830
156	2.2202			5.82383	19.10682	419.5952
157	2.5576			6.16123	20.21376	418.4882
158	2.72655			6.33018	20.76805	417.9339
152	1.46691	2.7049	-1.23709	5.07054	16.63542	422.0666
148	1.17481	2.80691	-1.63120	3.54135	11.61844	427.0835
137	1.22454	1.9873	-0.76186	1.95987	6.42995	432.2720
137	1.98859	2.09591	-0.10642	1.96206	6.43712	432.2649
104	1.88354	0.85138	1.03306	1.75058	5.74332	432.9587
3	0.8388			1.73890	5.70498	432.9970
Closure error				0.00717		
Distributed error				0.00090		
After distribution				-0.00000		

Site: Panel 3
Date: 9/6/88
Instrument used: NA-2 WILD to level
"Longitudinal Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.21166			1.21166	3.97521	432.9970
116	0.84111			0.84111	2.75951	434.2127
134	1.14461			1.14461	3.75524	433.2170
135	1.48692			1.48692	4.87829	432.0939
136	1.71856			1.71856	5.63825	431.3340
137	2.1134			2.11340	6.93364	430.0386
138	2.18432			2.18432	7.16632	429.8059
139	2.3209			2.32090	7.61441	429.3578
140	2.40211			2.40211	7.88084	429.0914
141	2.60671			2.60671	8.55209	428.4201
142	2.87692			2.87692	9.43860	427.5336
143	3.22723			3.22723	10.58790	426.3843
144	3.60069			3.60069	11.81314	425.1591
145	3.5104			3.51040	11.51692	425.4553
146	3.03406			3.03406	9.95414	427.0181
147	2.72045	1.0619	1.65855	2.72045	8.92525	428.0470
148	1.36315			3.02170	9.91359	427.0586
149	2.08455			3.74310	12.28036	424.6919
150	2.56715			4.22570	13.86368	423.1085
151	2.76509			4.42364	14.51308	422.4591
152	2.88336	1.34398	1.53938	4.54191	14.90110	422.0711
153	1.47148			4.66941	15.31940	421.6528
154	1.90629			5.10422	16.74592	420.2263
155	2.1891			5.38703	17.67377	419.2984
156	2.09502			5.29295	17.36511	419.6071
157	2.43157			5.62950	18.46926	418.5030
158	2.6028			5.80073	19.03103	417.9412

no closure

Site: Panel 3
Date: 9/7/88
Instrument used: NA-2 WILD to level
"Longitudinal Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.33597			1.33597	4.38305	432.9970
116	1.05347			1.05347	3.45622	433.9238
134	1.3974			1.39740	4.58459	432.7955
135	1.76045			1.76045	5.77568	431.6044
136	1.96182			1.96182	6.43634	430.9437
137	2.31101			2.31101	7.58196	429.7981
138	2.35719			2.35719	7.73347	429.6466
139	2.47933			2.47933	8.13419	429.2459
140	2.54568			2.54568	8.35187	429.0282
141	2.74529	2.41112	0.33466	2.74529	9.00675	428.3733
142	2.67899			3.01365	9.88719	427.4929
143	3.0242			3.35886	11.01975	426.3603
144	3.39999			3.73465	12.25265	425.1274
145	3.30783			3.64249	11.95029	425.4298
146	2.83166			3.16632	10.38807	426.9920
147	2.51892	1.66465	0.85476	2.85358	9.36203	428.0180
148	1.96836			3.15778	10.36006	427.0200
149	2.68865			3.87807	12.72319	424.6569
150	3.1709			4.36032	14.30535	423.0747
151	3.36698	1.73051	1.63696	4.55640	14.94865	422.4314
152	1.84725			4.67364	15.33326	422.0468
153	1.9762			4.80259	15.75632	421.6237
154	2.41123			5.23762	17.18357	420.1965
155	2.69175			5.51814	18.10390	419.2761
156	2.59606			5.42245	17.78996	419.5901
157	2.93436			5.76075	18.89986	418.4802
158	3.10073			5.92712	19.44568	417.9344
151	1.73051	3.17049	-1.43949	4.55690	14.95026	422.4298
147	1.46664	2.69696	-1.22983	2.85354	9.36189	428.0182
3	1.1789			1.33597	4.38305	432.9970
Closure error				0.00246		
Distributed closure error				0.00049		
After distribution				0.00000		

Site: Panel 3
Date: 9/8/88
Instrument used: NA-2 WILD to level
"Longitudinal Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.1863			1.18630	3.89201	432.9970
116	1.32663			1.32663	4.35241	432.5366
134	1.63166			1.63166	5.35315	431.5359
135	1.87388			1.87388	6.14783	430.7412
136	1.96482			1.96482	6.44618	430.4428
137	2.25633			2.25633	7.40257	429.4864
138	2.27251			2.27251	7.45565	429.4334
139	2.374			2.37400	7.78862	429.1004
140	2.4306			2.43060	7.97431	428.9147
141	2.6198	2.49019	0.13046	2.61980	8.59504	428.2940
142	2.75229			2.88275	9.45771	427.4313
143	3.09532			3.22578	10.58313	426.3059
144	3.46483			3.59529	11.79541	425.0936
145	3.37268			3.50314	11.49309	425.3959
146	2.89261			3.02307	9.91807	426.9709
147	2.57955	1.6713	0.90910	2.71001	8.89099	427.9980
148	1.97375			3.01330	9.88604	427.0030
149	2.69355			3.73310	12.24756	424.6415
150	3.17547			4.21502	13.82864	423.0604
151	3.3713	1.96685	1.40530	4.41085	14.47112	422.4179
152	2.08615			4.53100	14.86530	422.0237
153	2.21242			4.65727	15.27956	421.6094
154	2.64794			5.09279	16.70842	420.1806
155	2.9301			5.37495	17.63413	419.2549
156	2.83498			5.27983	17.32206	419.5670
157	3.1713			5.61615	18.42546	418.4636
158	3.33912			5.78397	18.97604	417.9130
150	1.7679	3.21602	-1.44727	4.21275	13.82118	423.0678
145	2.50145	2.42684	0.07546	3.49902	11.47960	425.4094
3	0.11327			1.18630	3.89201	432.9970
Closure error				0.00423		
Distributed error				0.00085		
After distribution				-0.00000		

Site: Panel 3
Date: 9/9/88
Instrument used: NA-2 WILD to level
"Longitudinal Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.01064			1.01064	3.31571	432.9448
116	1.47372			1.47372	4.83498	431.4255
134	1.69123			1.69123	5.54859	430.7119
135	1.84028			1.84028	6.03759	430.2229
136	1.884			1.88400	6.18103	430.0795
137	2.14533			2.14533	7.03840	429.2221
138	2.14335			2.14335	7.03190	429.2286
139	2.23194			2.23194	7.32255	428.9380
140	2.27708	2.17397	0.10250	2.27708	7.47064	428.7899
141	2.3565			2.45900	8.06749	428.1930
142	2.61529			2.71779	8.91653	427.3440
143	2.95445			3.05695	10.02924	426.2313
144	3.32143			3.42393	11.23323	425.0273
145	3.22777			3.33027	10.92595	425.3346
146	2.74574			2.84824	9.34451	426.9160
147	2.43216	1.62271	0.80884	2.53466	8.31571	427.9448
148	1.92444			2.83578	9.30363	426.9569
149	2.6446			3.55594	11.66633	424.5942
150	3.12538			4.03672	13.24367	423.0168
151	3.3221			4.23344	13.88907	422.3714
152	3.44	1.67218	1.76721	4.35134	14.27588	421.9846
153	1.79918			4.47773	14.69054	421.5700
154	2.23446			4.91301	16.11860	420.1419
155	2.51599			5.19454	17.04225	419.2183
156	2.41977			5.09832	16.72657	419.5339
157	2.75554			5.43409	17.82816	418.4323
158	2.9251			5.60365	18.38445	417.8761
152	1.67218	3.44294	-1.77137	4.35073	14.27387	421.9866
146	1.9387	2.94395	-1.00586	2.84588	9.33676	426.9237
3	1.10932			1.01064	3.31571	432.9448
Closure error				-0.00305		
Distributed closure				-0.00061		
After distribution				0.00000		

APPENDIX C Transverse Surveys and Subsidence Calculations

Site: Panel 3
Date: 9/1/88
Instrument used: NA-2 WILD to level
"Transverse Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.7389			1.73890	5.70498	432.997
112	1.81471			1.81471	5.95370	432.7483
113	1.52547			1.52547	5.00476	433.6972
114	1.3255			1.32550	4.34870	434.3533
115	1.25701			1.25701	4.12400	434.5780
116	1.20882			1.20882	3.96590	434.7361
117	1.25331			1.25331	4.11186	434.5901
118	1.41874			1.41874	4.65460	434.0474
141	2.95822	2.38565	0.57347	2.95822	9.70533	428.9967
148	2.96624	1.5827	1.38444	3.53971	11.61307	427.0889
152	3.11188	1.46705	1.64573	5.06978	16.63294	422.0690
152	1.46691	2.7049	-1.23709	5.07054	16.63542	422.0666
148	1.17481	2.80691	-1.63120	3.54135	11.61844	427.0835
137	1.22454	1.9873	-0.76186	1.95987	6.42995	432.2720
119	1.82458			1.79805	5.89903	432.8029
120	1.98021			1.95368	6.40963	432.2924
121	1.95435			1.92782	6.32478	432.3772
122	1.59808			1.57155	5.15593	433.5461
123	1.28453			1.25800	4.12724	434.5747
124	1.1987			1.17217	3.84565	434.8563
125	1.14088			1.11435	3.65595	435.0460
126	1.114			1.08747	3.56776	435.1342
127	0.88405			0.85752	2.81334	435.8886
128	1.07231			1.04578	3.43099	435.2710
129	1.2076			1.18107	3.87485	434.8271
130	1.18074			1.15421	3.78672	434.9153
131	1.09656			1.07003	3.51055	435.1914
132	1.18228			1.15575	3.79178	434.9102
133	1.37726			1.35073	4.43147	434.2705
137	1.98859	2.09591	-0.10642	1.96206	6.43712	432.2649
111	1.95541			1.82245	5.97911	432.7229
110	1.69455			1.56159	5.12328	433.5787
109	1.57429			1.44133	4.72873	433.9733
108	1.42332			1.29036	4.23343	434.4686
107	1.59844			1.46548	4.80796	433.8940
106	1.8743			1.74134	5.71300	432.9890
105	2.01319			1.88023	6.16867	432.5333
104	1.88354	0.85138	1.03306	1.75058	5.74332	432.9587
103	1.26893			2.16903	7.11615	431.5858
102	1.69118			2.59128	8.50147	430.2005
101	1.39608			2.29618	7.53331	431.1687
100	0.97932			1.87942	6.16600	432.5360
3	0.8388			1.73890	5.70498	432.9970
Closure error				0.00717		
Distributed closure				0.00090		
After distribution				-0.00000		

Site: Panel 3
Date: 9/6/88
Instrument used: NA-2 WILD to level
"Transverse Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.30587			1.30587	4.28430	432.9970
100	1.44432			1.44432	4.73853	432.5428
101	1.86431			1.86431	6.11643	431.1649
102	2.15795			2.15795	7.07980	430.2015
103	1.737			1.73700	5.69875	431.5825
104	1.32			1.32000	4.33066	432.9506
105	1.44509			1.44509	4.74105	432.5402
106	1.31001			1.31001	4.29788	432.9834
107	1.03421			1.03421	3.39304	433.8883
108	0.86258			0.86258	2.82995	434.4513
109	1.01412			1.01412	3.32712	433.9542
110	1.14048			1.14048	3.74169	433.5396
111	1.41115	1.69	-0.27676	1.41115	4.62970	432.6516
112	1.71721			1.44045	4.72584	432.5555
113	1.46762			1.19086	3.90699	433.3743
114	1.3067			1.02994	3.37904	433.9023
115	1.26851			0.99176	3.25375	434.0275
116	1.23078	1.02555	0.20733	0.95403	3.12997	434.1513
117	1.07322			1.00379	3.29323	433.9881
118	1.20524			1.13581	3.72637	433.5549
119	1.54295			1.47352	4.83432	432.4470
120	1.65573	2.44381	-0.78599	1.58630	5.20433	432.0770
121	2.39765			1.54224	5.05976	432.2215
122	2.02835			1.17294	3.84817	433.4331
123	1.70808			0.85266	2.79742	434.4839
124	1.6178			0.76238	2.50123	434.7801
125	1.55522			0.69980	2.29592	434.9854
126	1.52515			0.66973	2.19727	435.0840
127	1.29404			0.43862	1.43904	435.8423
128	1.48145			0.62603	2.05390	435.2274
129	1.61524			0.75982	2.49283	434.7885
130	1.58779			0.73237	2.40278	434.8785
131	1.50403			0.64861	2.12798	435.1533
132	1.58608			0.73066	2.39717	434.8841
133	1.77948			0.92406	3.03167	434.2496
120	2.44381	1.85645	0.58946	1.58840	5.21121	432.0701
3	1.57183			1.30587	4.28430	432.9970
Closure error			0.00838			
Distribution closure			0.00210			
After distribution			0.00000			

Site: Panel 3
Date: 9/7/88
Instrument used: NA-2 WILD to level
"Transverse Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.4151			1.41510	4.64266	432.9970
100	1.55215			1.55215	5.09229	432.5474
101	1.97			1.97000	6.46318	431.1765
102	2.26825			2.26825	7.44167	430.1980
103	1.84311			1.84311	6.04688	431.5928
104	1.42635			1.42635	4.67957	432.9601
105	1.55076			1.55076	5.08773	432.5519
106	1.42			1.42000	4.65874	432.9809
107	1.14456			1.14456	3.75507	433.8846
108	0.97218			0.97218	3.18953	434.4501
109	1.12682			1.12682	3.69687	433.9428
110	1.2553			1.25530	4.11839	433.5213
111	1.53	1.58239	-0.05168	1.53000	5.01962	432.6200
112	1.64622			1.59454	5.23138	432.4083
113	1.41851			1.36683	4.48430	433.1554
114	1.26692			1.21524	3.98697	433.6527
115	1.23491			1.18323	3.88195	433.7577
116	1.20055			1.14887	3.76922	433.8704
117	1.24438	1.36586	-0.12077	1.19270	3.91302	433.7266
118	1.49647			1.32403	4.34386	433.2958
119	1.82262			1.65018	5.41389	432.2258
120	1.9072			1.73476	5.69138	431.9483
121	1.84064			1.66820	5.47301	432.1666
122	1.46559			1.29315	4.24255	433.3971
123	1.1403			0.96786	3.17534	434.4643
124	1.04758			0.87514	2.87114	434.7685
125	0.98475	2.04	-1.05454	0.81231	2.66501	434.9746
126	2.01333			0.78635	2.57985	435.0598
127	1.78162			0.55464	1.81965	435.8200
128	1.96735			0.74037	2.42900	435.2107
129	2.10235			0.87537	2.87191	434.7678
130	2.07231			0.84533	2.77335	434.8663
131	1.99043			0.76345	2.50472	435.1349
132	2.0718			0.84482	2.77168	434.8680
133	2.26742			1.04044	3.41347	434.2262
117	2.36586	1.10091	1.26566	1.13888	3.73643	433.9032
3	1.37642			1.41510	4.64266	432.9970
Closure error				0.00285		
Distributed closure				0.00071		
After distribution				0.00000		

Site: Panel 3
Date: 9/8/88
Instrument used: NA-2 WILD to level
"Transverse Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.28797			1.28797	4.22557	432.9970
100	1.42394			1.42394	4.67166	432.5509
101	1.84338			1.84338	6.04776	431.1748
102	2.13892			2.13892	7.01737	430.2052
103	1.7182			1.71820	5.63707	431.5855
104	1.30098			1.30098	4.26826	432.9543
105	1.42615			1.42615	4.67891	432.5437
106	1.29103			1.29103	4.23561	432.9870
107	1.01812			1.01812	3.34025	433.8823
108	0.8468			0.84680	2.77818	434.4444
109	1.00317			1.00317	3.29120	433.9314
110	1.13446			1.13446	3.72194	433.5006
111	1.42098	0.7563	0.66634	1.42098	4.66195	432.5606
112		1.0335		1.69984	5.57684	431.6457
113		0.91338		1.57972	5.18275	432.0398
114		0.83688		1.50322	4.93176	432.2908
115		0.83301		1.49935	4.91907	432.3035
116		0.79321		1.45955	4.78849	432.4341
111	0.7563	1.40664	-0.64868	1.42430	4.67284	432.5497
3		1.27031		1.28797	4.22557	432.9970
Closure error		0.00332				
Distributed closure		0.00166				
After distribution		0.00000				

Site: Panel 3
Date: 9/9/88
Instrument used: NA-2 WILD to level
"Transverse Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.31141			1.31141	4.30247	432.9448
100	1.44747			1.44747	4.74886	432.4984
101	1.86571			1.86571	6.12102	431.1263
102	2.16369			2.16369	7.09863	430.1486
103	1.74088			1.74088	5.71148	431.5358
104	1.32263			1.32263	4.33928	432.9080
105	1.45115			1.45115	4.76093	432.4863
106	1.31507			1.31507	4.31448	432.9328
107	1.04192			1.04192	3.41833	433.8289
108	0.8716			0.87160	2.85955	434.3877
109	1.02748			1.02748	3.37096	433.8763
110	1.16197			1.16197	3.81219	433.4351
111	1.47227	1.20688	0.25800	1.47227	4.83022	432.4171
112	1.65867			1.91667	6.28820	430.9591
113	1.60658			1.86458	6.11730	431.1300
114	1.57006			1.82806	5.99749	431.2498
115	1.58032			1.83832	6.03115	431.2161
116	1.54222			1.80022	5.90615	431.3411
117	1.55593			1.81393	5.95113	431.2961
118	1.64176	2.51385	-0.87948	1.89976	6.23272	431.0146
119	2.78184			2.16035	7.08768	430.1596
120	2.6644			2.04291	6.70239	430.5449
121	2.30341			1.68192	5.51805	431.7292
122	1.87885			1.25736	4.12515	433.1221
123	1.54418			0.92269	3.02717	434.2201
124	1.44638			0.82489	2.70631	434.5410
125	1.38144			0.75995	2.49325	434.7540
126	1.34802	1.80752	-0.46689	0.72653	2.38361	434.8637
127	1.57436			0.48598	1.59440	435.6529
128	1.7622			0.67382	2.21066	435.0366
129	1.89557			0.80719	2.64822	434.5991
130	1.86813			0.77975	2.55820	434.6891
131	1.78308			0.69470	2.27917	434.9681
132	1.86613			0.77775	2.55164	434.6956
133	2.06138			0.97300	3.19221	434.0551
126	1.80752	1.56264	0.23749	0.71914	2.35935	434.8879
118	2.78424	1.64808	1.12877	1.93334	6.34291	430.9044
3	1.03354			1.31141	4.30247	432.9448
Closure error			-0.03697			
Distributed closure			-0.00739			
After distribution			0.00000			

Site: Panel 3
Date: 9/14/88
Instrument used: NA-2 WILD to level
"Transverse Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.36			1.36	4.4619	432.9448
100	1.4962			1.4962	4.9087	432.4980
101	1.91405			1.91405	6.2796	431.1271
102	2.20779			2.20779	7.2433	430.1634
103	1.78858			1.78858	5.8680	431.5387
104	1.37118			1.37118	4.4986	432.9081
105	1.4985			1.4985	4.9163	432.4904
106	1.36654			1.36654	4.4833	432.9233
107	1.09362			1.09362	3.5879	433.8187
108	0.92651			0.92651	3.0397	434.3670
109	1.08844			1.08844	3.5710	433.8357
110	1.23108			1.23108	4.0389	433.3678
111	1.64235	1.24652	0.39852	1.64235	5.3882	432.0185
112	1.98175			2.38027	7.8092	429.5975
113	1.98843			2.38695	7.8311	429.5756
114	1.95909			2.35761	7.7348	429.6718
115	1.9587			2.35722	7.7336	429.6731
116	1.91998			2.3185	7.6065	429.8002
117	1.93026			2.32878	7.6403	429.7664
118	2.02403	2.91885	-0.89213	2.42255	7.9479	429.4588
119	3.12222			2.62861	8.6239	428.7827
120	2.92239			2.42878	7.9683	429.4383
121	2.33678			1.84317	6.0471	431.3596
122	1.8547			1.36109	4.4655	432.9412
123	1.50726			1.01365	3.3256	434.0811
124	1.40215			0.90854	2.9807	434.4259
125	1.33154			0.83793	2.7491	434.6576
126	1.29395			0.80034	2.6258	434.7809
127	1.05717			0.56356	1.8489	435.5578
128	1.24062			0.74701	2.4508	434.9559
129	1.37738			0.88377	2.8995	434.5072
130	1.34111			0.8475	2.7805	434.6262
131	1.2546			0.76099	2.4967	434.9100
132	1.33948			0.84587	2.7751	434.6316
133	1.53381			1.0402	3.4127	433.9940
118	2.91885	2.05145	0.87009	2.42524	7.9567	429.4500
134	2.00703			2.38351	7.8198	429.5869
135	2.04177			2.41825	7.9338	429.4729
136	2.01918			2.39566	7.8597	429.5470
137	2.23467			2.61115	8.5667	428.8400
138	2.20543			2.58191	8.4707	428.9360
139	2.27491			2.65139	8.6987	428.7080
140	2.30544			2.68192	8.7988	428.6078
141	2.47705			2.85353	9.3619	428.0448
142	2.72629			3.10277	10.1796	427.2271
143	3.06166	2.81573	0.24862	3.43814	11.2798	426.1268
3	0.7349			1.36	4.4619	432.9448

Closure error 0.01076
Distributed closure 0.00269
After distribution 0.00000

Site: Panel 3
Date: 9/15/88
Instrument used: NA-2 WILD to level
"Transverse Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.30629			1.30629	4.28568	432.9448
100	1.44121			1.44121	4.72832	432.5022
101	1.86000			1.86000	6.10229	431.1282
102	2.15477			2.15477	7.06937	430.1611
103	1.73655			1.73655	5.69727	431.5332
104	1.31636			1.31636	4.31871	432.9118
105	1.44232			1.44232	4.73196	432.4985
106	1.31274			1.31274	4.30684	432.9236
107	1.04114			1.04114	3.41577	433.8147
108	0.87586			0.87586	2.87352	434.3570
109	1.03885			1.03885	3.40826	433.8222
110	1.18390			1.18390	3.88414	433.3463
111	1.61371	1.22437	0.39183	1.61371	5.29426	431.9362
112	1.98833			2.38016	7.80884	429.4216
113	1.99610			2.38793	7.83433	429.3961
114	1.96647			2.35830	7.73712	429.4934
115	1.96567			2.35750	7.73450	429.4960
116	1.92593			2.31776	7.60412	429.6264
117	1.93768			2.32951	7.64267	429.5878
118	2.03377			2.42560	7.95792	429.2726
119	2.23783			2.62966	8.62740	428.6031
120	2.03347	3.35799	-1.32203	2.42530	7.95694	429.2735
121	2.75705			1.82686	5.99355	431.2369
122	2.26292			1.33273	4.37241	432.8581
123	1.91351			0.98332	3.22607	434.0044
124	1.80537			0.87518	2.87128	434.3592
125	1.73248			0.80229	2.63214	434.5983
126	1.69513			0.76494	2.50960	434.7209
127	1.45810			0.52791	1.73196	435.4985
128	1.64000			0.70981	2.32873	434.9017
129	1.77212			0.84193	2.76219	434.4683
130	1.74096			0.81077	2.65996	434.5705
131	1.65377			0.72358	2.37391	434.8566
132	1.73709			0.80690	2.64727	434.5832
133	1.92420			0.99401	3.26114	433.9693
120	3.35799	2.10160	1.25888	2.42780	7.96512	429.2654
134	2.04000			2.36869	7.77120	429.4593
135	2.06622			2.39491	7.85722	429.3733
136	2.03705			2.36574	7.76152	429.4690
137	2.24451			2.57320	8.44215	428.7883
138	2.21532			2.54401	8.34639	428.8841
3	0.97760			1.30629	4.28568	437.2280
Closure error				0.00748		
Distributed closure				0.00249		
After distribution				0.00000		

Site: Panel 3
Date: 9/23/88
Instrument used: NA-2 WILD to level
"Transverse & Longitudinal Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.2901			1.29010	4.23256	432.9448
100	1.42116			1.42116	4.66254	432.5148
101	1.84			1.84000	6.03667	431.1407
102	2.1383			2.13830	7.01533	430.1620
103	1.72			1.72000	5.64298	431.5344
104	1.30353			1.30353	4.27662	432.9007
105	1.43436			1.43436	4.70585	432.4715
106	1.3017			1.30170	4.27062	432.9067
107	1.03377			1.03377	3.39159	433.7858
108	0.87205			0.87205	2.86102	434.3163
109	1.0382			1.03820	3.40613	433.7712
110	1.19			1.19000	3.90415	433.2732
111	1.65	1.18638	0.46396	1.65000	5.41332	431.7640
112	2.01084			2.47480	8.11933	429.0580
113	2.02326			2.48722	8.16008	429.0173
114	1.99209			2.45605	8.05781	429.1195
115	1.99265			2.45661	8.05965	429.1177
116	1.95525			2.41921	7.93665	429.2404
117	1.96725			2.43121	7.97632	429.2010
134	1.97738			2.44134	8.00655	429.1678
135	1.98846			2.45042	8.03934	429.1380
136	1.94103			2.40499	7.89030	429.2871
137	2.14			2.60396	8.54308	428.6343
138	2.10163			2.56559	8.41719	428.7602
117	1.96725	1.71437	0.25322	2.43121	7.97632	429.2010
118	1.81458			2.53176	8.30621	428.8712
119	2.02425			2.74143	8.99409	428.1833
120	1.81958			2.53676	8.32261	428.8547
121	1.20618			1.92336	6.31017	430.8672
122	0.69665	2.12238	-1.42539	1.41383	4.63850	432.5389
123	1.7656			1.05739	3.46910	433.7083
124	1.65233			0.94412	3.09748	434.0799
125	1.57521			0.86700	2.84447	434.3329
126	1.53462			0.82641	2.71130	434.4661
127	1.29492	1.43382	-0.13856	0.58671	1.92489	435.2525
128	1.61623			0.76947	2.52446	434.6529
129	1.74613			0.89937	2.95064	434.2267
130	1.71544			0.86868	2.84995	434.3274
131	1.6266			0.77984	2.55849	434.6189
132	1.70752			0.86076	2.82397	434.3534
133	1.8971			1.05034	3.44594	433.7314
127	1.43382	1.20145	0.23271	0.58706	1.92601	435.2513
117	3.04492	1.59678	1.44848	2.43087	7.97519	429.2022
138	1.73314			2.56757	8.42368	428.7537
139	1.79333			2.62776	8.62115	428.5562
140	1.81845			2.65288	8.70357	428.4738
141	1.98536			2.81979	9.25116	427.9262
142	2.23	2.07201	0.15833	3.06443	10.05378	427.1236
143	2.40278			3.39554	11.14009	426.0373
144	2.76405			3.75681	12.32534	424.8520
145	2.66255			3.65531	11.99234	425.1850
146	2.1739			3.16666	10.38918	426.7882
147	1.85145			2.84421	9.33129	427.8461
148	2.14543	0.91103	1.23474	3.13819	10.29578	426.8816
149	1.62444			3.85194	12.63745	424.5399
150	2.10395			4.33145	14.21083	422.9667
151	2.29648			4.52398	14.84228	422.3351
152	2.41135			4.63885	15.21915	421.9582
153	2.5344	1.27866	1.25608	4.76190	15.62285	421.5545
154	1.71166			5.19524	17.04456	420.1328
155	1.99095			5.47453	17.96085	419.2165
156	1.89444			5.37802	17.64422	419.5331
157	2.23			5.71358	18.74513	418.4322
158	2.39747			5.88105	19.29456	417.8828
153	1.27866	2.11460	-0.83560	4.76224	15.62397	421.5534
149	1.20293	2.54458	-1.34131	3.85092	12.63408	424.5433
145	2.3515	3.37946	-1.02762	3.65818	12.00175	425.1756
138	2.29155	2.35723	-0.06534	2.57061	8.43365	428.7437
3	1.07638			1.29010	4.23256	432.9448
Closure error				0.00444		
Distributed closure				0.00034		
After distribution				0.00000		

Site: Panel 3
Date: 9/27/88
Instrument used: NA-2 WILD to level
"Transverse & Longitudinal Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.34678			1.34678	4.41852	432.9448
100	1.48258			1.48258	4.86405	432.4993
101	1.89902			1.89902	6.23030	431.1330
102	2.19622			2.19622	7.20536	430.1580
103	1.77445			1.77445	5.82162	431.5417
104	1.36021			1.36021	4.46258	432.9007
105	1.49018			1.49018	4.88898	432.4743
106	1.36000			1.36000	4.46189	432.9014
107	1.09191			1.09191	3.58234	433.7810
108	0.93153			0.93153	3.05616	434.3072
109	1.09910			1.09910	3.60593	433.7574
110	1.25105			1.25105	4.10444	433.2589
111	1.71331	1.20220	0.51218	1.71331	5.62103	431.7423
112	2.03173			2.54391	8.34605	429.0173
113	2.04438			2.55656	8.38756	428.9758
114	2.01556			2.52774	8.29300	429.0703
115	2.01661			2.52879	8.29645	429.0669
116	1.97810			2.49028	8.17011	429.1932
117	1.99140	1.41295	0.57952	2.50358	8.21374	429.1496
118	1.51341			2.00511	6.54683	428.8165
119	1.72432			2.81602	9.23879	428.1245
120	1.52012			2.61182	8.56885	428.7945
121	0.90797	2.53866	-1.62962	1.99967	6.56051	430.8028
122	2.03135			1.49343	4.89963	432.4637
123	1.67471			1.13679	3.72956	433.6338
124	1.56190			1.02398	3.35946	434.0039
125	1.48484			0.94692	3.10664	434.2567
126	1.44390			0.90598	2.97232	434.3910
127	1.20000	1.43940	-0.23833	0.66208	2.17214	435.1912
128	1.62205			0.84579	2.77488	434.5884
129	1.75294			0.97688	3.20430	434.1590
130	1.72251			0.94625	3.10447	434.2588
131	1.63438			0.85812	2.81533	434.5480
132	1.71528			0.93902	3.08075	434.2826
133	1.90448			1.12822	3.70148	433.6618
127	1.43940	1.11535	0.32512	0.66314	2.17564	435.1877
117	2.95244	1.35666	1.59685	0.90552	2.97084	434.3925
134	1.36644			2.51215	8.24186	429.1215
135	1.37484			2.52055	8.26942	429.0939
136	1.33052			2.47623	8.12402	429.2393
137	1.52785			2.67356	8.77142	428.5919
138	1.48832			2.63403	8.64173	428.7216
139	1.54709			2.69280	8.83454	428.5288
140	1.57175			2.71746	8.91544	428.4479
141	1.73801			2.88372	9.46091	427.9024
142	1.98129			3.12700	10.25906	427.1043
143	2.31035	1.42235	0.88907	3.45606	11.33864	426.0247
144	1.78345			3.81823	12.52684	424.8365
145	1.68315			3.71793	12.19778	425.1655
146	1.19450			3.22928	10.59462	426.7687
147	0.87166			2.90644	9.53544	427.8279
148	1.16470			3.19948	10.49685	426.8665
149	1.87663	0.65000	1.22770	3.91141	12.83255	424.5308
150	1.13015			4.39263	14.41133	422.9520
151	1.32404			4.58652	15.04744	422.3159
152	0.00000			3.26248	10.70353	426.6598
153	1.56210			4.82458	15.82847	421.5348
154	1.99509	1.09320	0.90296	5.25757	17.24902	420.1143
155	1.37468			5.54012	18.17601	419.1873
156	1.27934			5.44478	17.86322	419.5001
157	1.61275			5.77819	18.95707	418.4062
158	1.78083			5.94627	19.50851	417.8548
154	1.09320	2.63546	-1.54119	5.25864	17.25253	420.1108
152	2.08151			4.70575	15.43864	421.9247
149	1.29199	2.70219	-1.40913	3.91623	12.84838	424.5149
145	2.50200	3.24111	-0.73804	4.45622	14.61997	422.7433
3	0.86971			1.34678	4.41852	432.9448

Closure error 0.01282
Distributed closure 0.00107
After distribution 0.00000

Site: Panel 3.
Date: 10/11/88
Instrument used: NA-2 WILD to level
"Transverse & Longitudinal Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.33058			1.33058	4.36537	432.8906
100	1.46238			1.46238	4.79778	432.4582
101	1.88017			1.88017	6.16846	431.0875
102	2.17728			2.17728	7.14322	430.1127
103	1.75795			1.75795	5.76748	431.4885
104	1.34160			1.34160	4.40152	432.8544
105	1.47346			1.47346	4.83413	432.4218
106	1.34172			1.34172	4.40191	432.8541
107	1.07553			1.07553	3.52860	433.7274
108	0.91626			0.91626	3.00607	434.2499
109	1.08577			1.08577	3.56219	433.6938
110	1.23918			1.23918	4.06550	433.1905
111	1.70434	1.08315	0.64176	1.70434	5.59160	431.6644
112	1.90029			2.54205	8.33996	428.9160
113	1.91371			2.55547	8.38399	428.8720
114	1.88569			2.52745	8.29206	428.9639
115	1.88658			2.52834	8.29498	428.9610
116	1.84850	1.72666	0.12241	2.49026	8.17005	429.0859
117	1.74116			2.50533	8.21950	429.0365
118	1.84395			2.60812	8.55673	428.6992
119	2.05802			2.82219	9.25905	427.9969
120	1.85641			2.62058	8.59761	428.6584
121	1.24709			2.01126	6.59855	430.6574
122	0.73987	2.15406	-1.41362	1.50404	4.93447	432.3215
123	1.79798			1.14853	3.76811	433.4879
124	1.68489			1.03545	3.39709	433.8589
125	1.60782			0.95838	3.14424	434.1117
126	1.56646			0.91701	3.00854	434.2474
127	1.32577	1.29774	0.02860	0.67632	2.21889	435.0371
128	1.48042			0.85958	2.82010	434.4359
129	1.61037			0.98953	3.24644	434.0095
130	1.57879			0.95795	3.14283	434.1131
131	1.48978			0.86894	2.85081	434.4052
132	1.56945			0.94861	3.11219	434.1438
133	1.75749			1.13665	3.72911	433.5269
125	1.57464	1.02110	0.55411	0.95380	3.12922	434.1268
121	2.07781	0.91258	1.16580	2.01108	6.59795	430.6580
134	1.41568			2.51475	8.25039	429.0056
135	1.42213			2.52120	8.27155	428.9844
136	1.37650			2.47557	8.12185	429.1341
137	1.57380			2.67287	8.76915	428.4868
138	1.53429			2.63336	8.63953	428.6164
139	1.59129			2.69036	8.82653	428.4294
140	1.61580			2.71487	8.90695	428.3490
141	1.78141	0.92001	0.86197	2.88048	9.45028	427.8057
142	1.16568			3.12672	10.25815	426.9978
143	1.49535			3.45639	11.33973	425.9162
144	1.85563			3.81667	12.52174	424.7342
145	1.75378			3.71482	12.18759	425.0684
146	1.26239			3.22343	10.57543	426.6805
147	0.93795	0.25766	0.68086	2.89899	9.51101	427.7450
148	0.55668			3.19858	10.49391	426.7621
149	1.27334			3.91524	12.84513	424.4108
150	1.75000			4.39190	14.40896	422.8470
151	1.93920			4.58110	15.02968	422.2263
152	2.05062	0.97000	1.08119	4.69252	15.39523	421.8607
153	1.09548			4.81858	15.80878	421.4472
154	1.52894			5.25203	17.23088	420.0251
155	1.80465			5.52774	18.13543	419.1205
156	1.70608			5.42918	17.81204	419.4439
157	2.03673			5.75982	18.89683	418.3591
158	2.20165			5.92475	19.43790	417.8181
152	0.97000	1.95288	-0.98231	4.69310	15.39711	421.8589
148	0.45813	1.46310	-1.00440	3.19892	10.49501	426.7610
141	1.14471	2.16847	-1.02319	2.88110	9.45231	427.8037
3	0.61738			1.33058	4.36537	432.8906

Closure error 0.00686
Distributed closure 0.00057
After distribution 0.00000

Site: Panel 3
Date: 11/17/88
Instrument used: NA-2 WILD to level
"Transverse Monument Line"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
3	1.66257			1.66257	5.45456	432.8906
100	1.79650			1.79650	5.89396	432.4512
101	2.21534			2.21534	7.26809	431.0771
102	2.51363			2.51363	8.24672	430.0984
103	2.09270			2.09270	6.86573	431.4794
104	1.67868			1.67868	5.50741	432.8377
105	1.81000			1.81000	5.93825	432.4069
106	1.67743			1.67743	5.50331	432.8418
107	1.41220			1.41220	4.63315	433.7120
108	1.25459			1.25459	4.11606	434.2291
109	1.42336			1.42336	4.66976	433.6754
110	1.57761			1.57761	5.17582	433.1693
111	2.03534	0.67268	1.36356	2.03534	6.67754	431.6676
112	1.51882			2.88238	9.45650	428.8887
113	1.53582			2.89938	9.51227	428.8329
114	1.50663			2.87019	9.41650	428.9287
115	1.50793			2.87149	9.42077	428.9244
116	1.47212			2.83568	9.30328	429.0419
134	1.49079			2.85435	9.36454	428.9806
135	1.49691			2.86047	9.38461	428.9605
136	1.44849			2.81205	9.22576	429.1194
137	1.64323			3.00679	9.86466	428.4805
116	1.47212	1.89584	-0.42282	2.83568	9.30328	429.0419
122	0.91655			1.85728	6.09336	432.2518
123	0.56931			1.51004	4.95414	433.3910
124	0.44556	1.47916	-1.03271	1.38629	4.54814	433.7970
125	1.37319			1.28122	4.20341	434.1417
126	1.34196			1.24999	4.10095	434.2442
127	1.10393			1.01196	3.32002	435.0251
128	1.28506			1.19309	3.91427	434.4309
129	1.41396			1.32199	4.33717	434.0080
130	1.38233			1.29036	4.23340	434.1118
131	1.29245			1.20048	3.93852	434.4066
132	1.37260			1.28063	4.20147	434.1437
133	1.56000			1.46803	4.81630	433.5289
124	1.47916	0.37539	1.10467	1.38719	4.55108	433.7941
134	1.84504	1.64657	0.19936	2.65926	8.72450	429.6207
111	0.83150	2.04542	-1.21303	3.68030	12.07433	426.2708
3	1.66354			1.66257	5.45456	432.8906
Closure error		0.00537				
Distributed closure		0.00090				
After distribution		-0.00000				

Site: Panels 3 & 4

Date: 12/12/89

Instrument used: NA-2 WILD to level

"Transverse Monument Line Over Panels 3 & 4"

					CORRECTED	
		ROD		ELEV.		
MON #	READING			METERS	FEET	FEET
0005	1.06622			1.06622	3.49805	420.3548
A	1.44953	1.40115	0.04861	1.44953	4.75562	419.0972
81	1.34691			1.39552	4.57843	419.2744
B	0.26940	3.49156	-3.22193	0.31801	1.04333	422.8095
86	2.55141			-0.62191	-2.04035	425.8932
87	0.64802	1.02191	-0.37366	-2.52530	-8.28499	432.1378
88	0.47660			-3.07038	-10.07329	433.9261
89	0.91245			-2.63453	-8.64335	432.4962
90	1.58858			-1.95840	-6.42510	430.2780
91	1.94906			-1.59792	-5.24244	429.0953
92	2.21521			-1.33177	-4.36926	428.2221
93	2.34637	0.59681	1.74979	-1.20061	-3.93895	427.7918
94	0.69867			-1.09851	-3.60401	427.4569
95	1.07735			-0.71983	-2.36163	426.2145
96	1.32287			-0.47431	-1.55613	425.4090
97	1.30333			-0.49385	-1.62024	425.4731
98	0.78677	1.85705	-1.07005	-1.01041	-3.31497	427.1678
99	0.78920			-2.07803	-6.81761	430.6705
100	0.65191			-2.21532	-7.26803	431.1209
101	1.00724			-1.85999	-6.10226	429.9551
102	1.26409			-1.60314	-5.25959	429.1124
103	0.82478			-2.04245	-6.70088	430.5537
104	0.39756	1.66852	-1.27073	-2.46967	-8.10250	431.9554
105	1.78367			-2.35429	-7.72396	431.5768
106	1.64357			-2.49439	-8.18360	432.0365
107	1.37374			-2.76422	-9.06886	432.9217
108	1.20387			-2.93409	-9.62617	433.4790
109	1.36322			-2.77474	-9.10337	432.9562
110	1.51107			-2.62689	-8.61831	432.4712
111	1.96900	0.91796	1.05127	-2.16896	-7.11593	430.9688
116	1.61828	1.05367	0.56484	-1.46841	-4.81756	428.6704
122	0.04764	1.79700	-1.74913	-2.47421	-8.11738	431.9702
123	1.43383			-2.83715	-9.30811	433.1610
124	1.31702			-2.95396	-9.69134	433.5442
125	1.23645			-3.03453	-9.95568	433.8085
126	1.19446			-3.07652	-10.09344	433.9463
127	0.94968			-3.32130	-10.89651	434.7494
128	1.12810			-3.14288	-10.31115	434.1640
129	1.25571			-3.01527	-9.89249	433.7453
130	1.22282			-3.04816	-10.00039	433.8532
131	1.13212			-3.13886	-10.29796	434.1508
132	1.21060			-3.06038	-10.04049	433.8933
133	1.39547			-2.87551	-9.43396	433.2868
122	1.79700	0.42203	1.37520	-2.47398	-8.11662	431.9695
C	1.06315	1.69548	-0.63210	-1.83263	-6.01248	429.8653
99	1.45219	0.49316	0.95926	-2.07568	-6.80991	430.6628
90	0.61399	1.38868	-0.77446	-1.95462	-6.41273	430.2656
D	3.63940	0.55372	3.08591	0.29633	0.97219	422.8807
0005		1.32338		1.06622	3.49805	420.3548

Closure error 0.00324
Distributed error 0.00023
After distribution 0.00000

Site: Panels 3 & 4

Date: 11/14/90

Instrument used: NA-2 WILD to level

"Transverse Monument Line Over Panels 3 & 4"

					CORRECTED	
MON #	ROD					ELEV.
	READING			METERS	FEET	FEET
0001	0.29602			0.29602	0.97118	437.2000
A	3.72697	0.73518	2.99179	3.72697	12.22744	425.9437
B	1.87289	1.23292	0.63997	4.86468	15.96004	422.2111
0005	1.79054	1.07154	0.71917	5.42230	17.78948	420.3817
79	1.39755			5.74848	18.85960	419.3116
80	1.46225	1.48706	-0.02464	5.81318	19.07187	419.0993
81	1.42907			5.75535	18.88215	419.2890
C	0.08283	3.40180	-3.31880	4.40911	14.46541	423.7058
86	2.73772			3.74520	12.28724	425.8839
87	0.84042			1.84790	6.06258	432.1086
88	0.30060			1.30808	4.29154	433.8796
89	0.74849			1.75597	5.76097	432.4102
90	1.47584			2.48332	8.14726	430.0239
91	1.84675			2.85423	9.36414	428.8070
92	2.12323			3.13071	10.27122	427.9000
93	2.24395			3.25143	10.66728	427.5039
94	2.34607	1.95567	0.39057	3.35355	11.00231	427.1689
95	2.33332			3.73136	12.24185	425.9293
96	2.57403			3.97207	13.03157	425.1396
97	2.55448			3.95252	12.96743	425.2038
98	2.03983			3.43787	11.27897	426.8922
99	0.97111			2.36915	7.77271	430.3985
100	0.83346			2.23150	7.32111	430.8501
101	1.18782			2.58586	8.48369	429.6875
102	1.44559			2.84363	9.32939	428.8418
0003	0.55742			1.95546	6.41548	431.7557
103	1.00611	2.10308	-1.09680	2.40415	7.88754	430.2836
104	1.67442			1.97566	6.48173	431.6894
105	1.79058			2.09182	6.86283	431.3084
106	1.64828			1.94952	6.39597	431.7752
107	1.37771			1.67895	5.50829	432.6629
108	1.20853			1.50977	4.95324	433.2179
109	1.36773			1.66897	5.47555	432.6956
110	1.51351			1.81475	5.95382	432.2174
111	1.96671	0.70693	1.25995	2.26795	7.44068	430.7305
116	1.38458			2.94576	9.66446	428.5067
D	1.18275	2.72211	-1.53919	2.74393	9.00229	429.1689
122	1.91457			1.93656	6.35346	431.8177
123	1.54864			1.57063	5.15291	433.0183
124	1.43337			1.45536	4.77474	433.3964
125	1.35233			1.37432	4.50886	433.6623
126	1.30793			1.32992	4.36319	433.8080
127	1.06688	1.21076	-0.14371	1.08887	3.57236	434.5988
128	1.38651			1.26478	4.14950	434.0217
129	1.51233			1.39060	4.56229	433.6089
130	1.47297			1.35124	4.43316	433.7380
131	1.38531			1.26358	4.14556	434.0256
132	1.45719			1.33546	4.38139	433.7898
133	1.64660			1.52487	5.00280	433.1684
127	1.21061	1.02835	0.18243	1.08888	3.57241	434.5988
E	2.68453	1.08090	1.60380	2.74523	9.00654	429.1646
111	0.60476	1.98737	-1.38244	2.26925	7.44497	430.7262
103	2.12431	1.20008	0.92440	2.40636	7.89478	430.2764
94	2.14891	2.36882	-0.21974	3.35535	11.00825	427.1629
F	3.40670	0.14129	3.26558	4.39340	14.41386	423.7573
80	1.56154	1.43160	0.13011	5.81381	19.07396	419.0972
0005	1.03992			5.42230	17.78948	420.3817
Closure error				0.00248		
Distributed error				0.00017		
After distribution				0.00000		

Site: Panels 3 & 4

Date: 2/4/91

Instrument used: NA-2 WILD to level

Transverse Monument Line Over Panels 3 & 4

				CORRECTED		
MON #	ROD READING			METERS	FEET	ELEV. FEET
0005	1.20574			1.20574	3.95578	420.3898
A	1.53201	1.32239	0.20981	1.53201	5.02622	419.3194
B	0.08860	3.83516	-3.74637	0.29841	0.97903	423.3665
93	2.58634	0.99102	1.59551	-0.95022	-3.11749	427.4631
99	0.10846	0.92726	-0.81861	-1.83259	-6.01237	430.3579
105	0.65294	1.93469	-1.28157	-2.10673	-6.91176	431.2573
106	1.79368			-2.24755	-7.37378	431.7194
107	1.52239			-2.51884	-8.26383	432.6094
108	1.35248			-2.68875	-8.82127	433.1668
109	1.50950			-2.53173	-8.30612	432.6517
110	1.65202			-2.38921	-7.83854	432.1841
111	2.09879	0.59777	1.50121	-1.94244	-6.37277	430.7183
116	1.28278	1.21643	0.06654	-1.25725	-4.12478	428.4704
C	0.48688	2.08908	-1.60201	-1.98662	-6.51770	430.8633
122	1.80757			-2.26794	-7.44065	431.7862
123	1.44828			-2.62723	-8.61940	432.9650
124	1.33035			-2.74516	-9.00631	433.3519
125	1.24789			-2.82762	-9.27684	433.6224
126	1.20286			-2.87265	-9.42458	433.7702
127	0.95823	1.31090	-0.35248	-3.11728	-10.22716	434.5727
128	1.48752			-2.94047	-9.64708	433.9927
129	1.61176			-2.81623	-9.23947	433.5850
130	1.57618			-2.85181	-9.35620	433.7018
131	1.48391			-2.94408	-9.65892	434.0045
132	1.55987			-2.86812	-9.40971	433.7553
133	1.74469			-2.68330	-8.80336	433.1489
127	1.31008	0.87768	0.43259	-3.11791	-10.22922	434.5748
D	2.01160	0.45693	1.55485	-1.98380	-6.50845	430.8540
116	1.18395	1.42958	-0.24544	-1.25659	-4.12263	428.4682
111	0.74456	2.20004	-1.45530	-1.94143	-6.36945	430.7150
105	2.03511	0.76150	1.27380	-2.10618	-6.90994	431.2555
99	1.03588	0.21634	0.81973	-1.83161	-6.00915	430.3547
93	1.09786	2.24541	-1.14736	-0.94991	-3.11646	427.4620
E	3.70751	0.42382	3.28388	0.51238	1.68101	422.6646
MON?????	1.45093	1.32829	0.12283	1.53968	5.05138	419.2942
F	1.41209	1.76388	-0.35160	1.62366	5.32690	419.0187
0005	1.34577			1.20574	3.95578	420.3898
Closure error			0.00353			
Distributed error			0.00019			
After distribution			0.00000			

Site: Panels 3 & 4

Date: 5/9/91

Instrument used: NA-2 WILD to level

"Transverse Monument Line Over Panels 3 & 4"

				CORRECTED		
MON #	ROD READING			METERS	FEET	ELEV. FEET
0005	1.20849			1.20849	3.96481	420.3834
86	1.53601	1.26964	0.26613	1.53601	5.03934	419.3089
A	0.22833	3.84712	-3.61903	0.49446	1.62221	422.7260
90	1.64703	0.74093	0.90586	-1.70588	-5.59665	429.9449
?	2.21840	3.12201	-0.90385	-0.22865	-0.75016	425.0984
B	1.09822	1.81609	-0.71811	-2.25269	-7.39061	431.7388
C	2.19283	0.83061	1.36198	-1.87619	-6.15541	430.5036
116	1.46818			-1.23886	-4.06447	428.4127
P301	1.22138			-1.48567	-4.87417	429.2224
P202	1.30112			-1.40592	-4.61256	428.9608
C	0.83057	2.17121	-1.34088	-1.87648	-6.15634	430.5046
D	1.79726	0.83251	0.96451	-2.25067	-7.38400	431.7322
?	2.33781	1.31463	1.02294	-0.74561	-2.44621	426.7944
E	0.53368	1.80773	-1.27429	-1.52681	-5.00915	429.3574
F	3.84836	0.36988	3.47824	0.51358	1.68495	422.6633
86	1.39198	1.54178	-0.15004	1.53543	5.03745	419.3108
0005	1.21508			1.20849	3.96481	420.3834
Closure error				-0.00293		
Distributed error				-0.00024		
After distribution				-0.00000		

Site: Panels 3 & 4

Date: 12/10/91

Instrument used: NA-2 WILD to level

"Transverse Monument Line Over Panels 3 & 4"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
0005	1.14072			1.14072	3.74247	420.3964
tp1	1.53258	1.49232	0.03982	1.53258	5.02809	419.1108
tp2	0.30062	3.61949	-3.31931	0.34044	1.11690	423.0220
93	2.29847	1.57068	0.72735	-0.98103	-3.21856	427.3574
94	1.67210			-0.88005	-2.88727	427.0261
99	0.69237			-1.85978	-6.10157	430.2404
100	0.55612			-1.99603	-6.54858	430.6875
101	0.91236			-1.63979	-5.37983	429.5187
103	0.73165	2.04600	-1.31479	-1.82050	-5.97270	430.1116
107	1.32344			-2.54351	-8.34473	432.4836
109	1.31181			-2.55514	-8.38289	432.5218
110	1.45486			-2.41209	-7.91357	432.0524
111	1.91153	0.72805	1.18304	-1.95542	-6.41533	430.5542
116	1.39578			-1.28813	-4.22609	428.3650
tp3	1.73577	2.87679	-1.14146	-0.94814	-3.11066	427.2495
127	0.67678			-3.14859	-10.32990	434.4688
p300	0.82577			-2.99960	-9.84110	433.9800
p203	0.61017			-3.21520	-10.54844	434.6873
127	0.67678	0.75336	-0.07702	-3.14859	-10.32990	434.4688
tp4	2.94518	1.76221	1.18253	-0.95722	-3.14044	427.2793
116	1.43117			-1.28870	-4.22797	428.3668
111	0.76245	2.00151	-1.23950	-1.95742	-6.42191	430.5608
103	2.13695	0.81725	1.31926	-1.82242	-5.97901	430.1179
94	1.75679	2.67422	-0.91787	-0.88333	-2.89802	427.0369
92	2.45278			-1.10521	-3.62598	427.7649
91	2.17618			-1.38181	-4.53345	428.6723
90	1.80198			-1.75601	-5.76113	429.9000
89	1.05991			-2.49808	-8.19571	432.3346
87	1.15143			-2.40656	-7.89545	432.0343
86	3.04983			-0.50816	-1.66718	425.8061
tp5	3.87595	0.48152	3.39399	0.31796	1.04316	423.0957
81	1.65190			1.48789	4.88148	419.2574
80	1.70307			1.53906	5.04936	419.0895
79	1.63801	1.42412	0.21345	1.47400	4.83591	419.3030
0005	1.09128			1.14072	3.74247	420.3964
Closure error			-0.00577			
Distributed error			-0.00044			
After distribution			-0.00000			

Site: Panels 3 & 4

Date: 4/15/92

Instrument used: NA-2 WILD to level

"Transverse Monument Line Over Panels 3 & 4"

		CORRECTED		
		ELEV.		
		FEET		
MON #	ROD READING			
		METERS	FEET	
0005	0.99759	0.99759	3.27289	420.3817
79	1.33624	1.33624	4.38394	419.2707
80	1.40567	1.40567	4.61172	419.0429
81	1.35618	2.30613 -0.95014	4.44936	419.2052
86	0.32341	2.81374 -2.49052	-0.62673	425.7108
87	0.91728	-2.52338	-8.27871	431.9333
89	0.82395	-2.61671	-8.58490	432.2395
90	1.56312	-1.87754	-6.15983	429.8144
91	1.93621	-1.50445	-4.93580	428.5904
92	2.21159	-1.22907	-4.03233	427.6869
93	2.33039	-1.11027	-3.64257	427.2972
CL Panel 4	94	2.43092 2.23142 0.19931	-1.00974	426.9673
	95	2.60786	-0.63349	425.7329
	96	2.85006	-0.39129	424.9383
	97	2.83145	-0.40990	424.9994
	98	2.31517	-0.92618	426.6932
	99	1.24914	-1.99221	430.1906
	100	1.11324	-2.12811	430.6365
	101	1.46878	-1.77257	429.4700
	102	1.72735	-1.51400	428.6217
	103	1.28732 2.16194 -0.87481	-1.95403	430.0654
	105	1.85210	-2.26406	431.0825
	107	1.43896	-2.67720	432.4380
	108	NA	-4.11616	437.1589
	109	1.42582	-2.69034	432.4811
	110	1.56612	-2.55004	432.0208
	111	2.01080 0.72147 1.28914	-2.10536	430.5619
CL Panel 3	116	1.40114	-1.42588	428.3326
	A	1.68708 2.75060 -1.06371	-1.13994	427.3945
	127	0.60362	-3.28711	434.4389
	B	2.75060 1.69662 1.05379	-1.14013	427.3951
	111	0.73120 2.07792 -1.34691	-2.10574	430.5631
	103	2.22912 1.12854 1.10039	-1.95473	430.0677
	94	2.07319 2.48477 -0.41177	-1.01027	426.9691
	86	2.86754 0.38439 2.48296	-0.62769	425.7139
	81	2.36792 1.39135 0.97638	1.35565	419.2070
0005	1.03348	0.99759	3.27289	420.3817
Closure error		-0.00228		
Distributed error		-0.00019		
After distribution		0.00000		

Site: Panels 3 & 4

Date: 12/03/92

Instrument used: NA-2 WILD to level

Transverse Monument Line Over Panels 3 & 4

MON #	ROD READING				CORRECTED ELEV. FEET	
		METERS		FEET		
0005	1.22125			1.22125	4.00668	420.4269
	79 1.56691			1.56691	5.14072	419.2929
	81 1.59725	2.25619	-0.65872	1.59725	5.24026	419.1933
	86 0.29258	2.94564	-2.65284	-0.36614	-1.20124	425.6348
	87 1.04899			-2.26257	-7.42305	431.8566
	89 0.95030			-2.36126	-7.74683	432.1804
	90 1.68473			-1.62683	-5.33731	429.7709
CL Panel 4	94 2.54141	1.81597	0.72566	-0.77015	-2.52672	426.9603
	101 1.04741			-1.53850	-5.04749	429.4811
	102 1.30540			-1.28051	-4.20108	428.6347
	103 0.86484	2.12517	-1.26011	-1.72107	-5.64647	430.0800
	105 1.81309			-2.03293	-6.66963	431.1032
	107 1.40271			-2.44331	-8.01600	432.4496
	109 1.39152			-2.45450	-8.05271	432.4863
	111 1.98618	0.78276	1.20364	-1.85984	-6.10175	430.5353
CL Panel 3	116 1.44644			-1.19594	-3.92363	428.3572
	A 1.78709	3.24107	-1.45376	-0.85529	-2.80603	427.2396
	127 1.03895			-3.05719	-10.03003	434.4636
	B 3.24107	1.80980	1.43149	-0.85507	-2.80531	427.2389
	116 1.46870			-1.19595	-3.92368	428.3573
	111 0.80464	1.97743	-1.17257	-1.86001	-6.10233	430.5359
	103 2.11637	0.70708	1.40951	-1.72085	-5.64578	430.0794
	94 1.65862	2.72422	-1.06538	-0.76909	-2.52325	426.9568
	86 3.12804	0.64575	2.48251	-0.36506	-1.19768	425.6313
	81 2.60943	1.44491	1.16474	1.59884	5.24548	419.1881
0005	1.06710			1.22125	4.00668	420.4269
Closure error				0.00262		
Distributed error				0.00022		
After distribution				-0.00000		

Site: Panels 3 & 4

Date: 1/17/89

Instrument used: NA-2 WILD to level

"Transverse Monument Line Over Panels 3 & 4"

				CORRECTED		
MON #	ROD READING			METERS	FEET	ELEV. FEET
0005	1.34818			1.34818	4.42311	420.3592
79	1.67022	1.35375	0.31652	1.67022	5.47966	419.3027
80	1.41174			1.72826	5.67008	419.1122
81	1.35115			1.66767	5.47130	419.3110
82	1.46193			1.77845	5.83474	418.9476
83	1.45220			1.76872	5.80282	418.9795
84	1.32242			1.63894	5.37704	419.4053
85	0.74361	3.61841	-2.87475	1.06013	3.47808	421.3042
86	2.13337			-0.42486	-1.39387	426.1762
87	0.19790	1.64638	-1.44843	-2.36033	-7.74376	432.5261
88	1.03814			-2.96852	-9.73911	434.5214
89	1.16699			-2.83967	-9.31638	434.0987
90	1.20405			-2.80261	-9.19479	433.9771
91	1.21801			-2.78865	-9.14899	433.9313
92	1.31512			-2.69154	-8.83039	433.6127
93	1.34211			-2.66455	-8.74184	433.5242
CL Panel 4 94	1.41424			-2.59242	-8.50520	433.2875
95	1.79253	1.29107	0.50151	-2.21413	-7.26411	432.0464
96	1.61764			-1.88750	-6.19253	430.9748
97	1.81114			-1.69400	-5.55769	430.3400
98	1.67424			-1.83090	-6.00683	430.7891
99	1.25645			-2.24869	-7.37752	432.1598
100	1.25310			-2.25204	-7.38851	432.1708
101	1.65818			-1.84696	-6.05952	430.8418
102	1.94365			-1.56149	-5.12295	429.9053
103	1.52030	2.17136	-0.65101	-1.98484	-6.51188	431.2942
104	1.75455			-2.40160	-7.87918	432.6615
0003	1.75357			-2.40258	-7.88240	432.6647
105	1.88106			-2.27509	-7.46413	432.2464
106	1.74462			-2.41153	-7.91176	432.6941
107	1.47539			-2.68076	-8.79505	433.5774
108	1.31568			-2.84047	-9.31903	434.1013
109	1.48367			-2.67248	-8.76788	433.5502
110	1.63566			-2.52049	-8.26924	433.0515
111	2.10525	0.89000	1.21530	-2.05090	-6.72861	431.5109
CL Panel 3 116	1.68318	2.71424	-1.03101	-1.25767	-4.12617	428.9085
122	1.72718	2.22659	-0.49936	-2.24468	-7.36435	432.1467
123	1.86875			-2.60247	-8.53818	433.3205
124	1.75560			-2.71562	-8.90941	433.6917
125	1.67745			-2.79377	-9.16580	433.9481
126	1.63729			-2.83393	-9.29756	434.0799
127	1.39693			-3.07429	-10.08613	434.8684
128	1.57787			-2.89335	-9.49250	434.2748
129	1.70724	1.82001	-0.11272	-2.76398	-9.06807	433.8504
130	1.78838			-2.79556	-9.17167	433.9540
131	1.70000			-2.88394	-9.46163	434.2439
132	1.78925			-2.79469	-9.16881	433.9511
133	1.96622			-2.61772	-8.58821	433.3705
124	1.86910	0.71366	1.15549	-2.71484	-8.90684	433.6892
116	2.17281	1.56799	0.60487	-1.25564	-4.11950	428.9018
109	0.15477	0.78821	-0.63339	-2.66881	-8.75582	433.5381
100	1.21088	1.51702	-0.30609	-2.24609	-7.36896	432.1513
91	0.99679	0.25150	0.74534	-2.76626	-9.07556	433.8579
86	2.59031	0.22549	2.36487	-0.42740	-1.40222	426.1845
80	2.37873	1.46226	0.91652	1.72589	5.66230	419.1200
0005	1.08450			1.34818	4.42311	420.3592

Closure error 0.00082
Distributed closure 0.00005
After distribution -0.00000

Site: Panels 3 & 4

Date: 1/23/89

Instrument used: NA-2 WILD to level

"Transverse Monument Line Over Panels 3 & 4"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
0005	1.40110			1.40110	4.59673	420.3592
79	1.72376			1.72376	5.65531	419.3006
80	1.78381			1.78381	5.85232	419.1036
82	1.83834	3.53282	-1.69411	1.83834	6.03123	418.9247
81	3.41917			1.72506	5.65959	419.2963
83	3.52608			1.83197	6.01034	418.9456
84	3.40191			1.70780	5.60296	419.3530
85	2.83115			1.13704	3.73041	421.2255
86	1.35834	2.57190	-1.21319	-0.33577	-1.10159	426.0575
87	0.65765			-2.24964	-7.38063	432.3366
88	0.09759			-2.80970	-9.21808	434.1740
89	0.49120			-2.41609	-7.92672	432.8827
90	1.09196			-1.81533	-5.95575	430.9117
91	1.42367			-1.48362	-4.86748	429.8234
92	1.69212			-1.21517	-3.98674	428.9427
93	1.81000			-1.09729	-3.60000	428.5559
CL Panel 4 94	1.90862			-0.99867	-3.27645	428.2324
95	2.27931			-0.62798	-2.06029	427.0162
96	2.51130	2.08289	0.42878	-0.39599	-1.29918	426.2551
97	2.04502			-0.43349	-1.42220	426.3781
98	1.52570			-0.95281	-3.12599	428.0819
99	0.53293			-1.94558	-6.38306	431.3390
100	0.39835			-2.08016	-6.82459	431.7805
101	0.76088			-1.71763	-5.63521	430.5911
102	1.02335			-1.45516	-4.77409	429.7300
103	0.59910			-1.87941	-6.16597	431.1219
104	0.16551			-2.31300	-7.58850	432.5444
0003	0.16000	1.71884	-1.55847	-2.31851	-7.60657	432.5625
105	1.84511			-2.19187	-7.19108	432.1470
106	1.70747			-2.32951	-7.64265	432.5986
107	1.43613			-2.60085	-8.53287	433.4888
108	1.27436			-2.76262	-9.06360	434.0195
109	1.43984			-2.59714	-8.52069	433.4766
110	1.58941			-2.44757	-8.02998	432.9859
111	2.05826			-1.97872	-6.49178	431.4477
CL Panel 3 116	2.84228	2.48113	0.36152	-1.19470	-3.91957	428.8755
122	1.49150			-2.18396	-7.16512	432.1211
123	1.13402			-2.54144	-8.33794	433.2939
124	1.02026			-2.65520	-8.71117	433.6671
125	0.94122			-2.73424	-8.97048	433.9264
126	0.90035	1.72782	-0.82710	-2.77511	-9.10457	434.0605
127	1.47588			-3.02667	-9.92991	434.8858
P204	1.44433			-3.05822	-10.03342	434.9893
P300	1.63666			-2.86589	-9.40242	434.3584
128	1.65042			-2.85213	-9.35728	434.3132
129	1.78567			-2.71688	-8.91355	433.8695
130	1.75392			-2.74863	-9.01772	433.9736
131	1.66458			-2.83797	-9.31082	434.2668
132	1.74369			-2.75886	-9.05128	434.0072
133	1.93187			-2.57068	-8.43390	433.3898
124	1.83697	1.06657	0.77077	-2.66558	-8.74525	433.7012
116	2.52735			-1.20443	-3.95150	428.9074
P202	2.40000			-1.33178	-4.36931	429.3252
P301	2.30190			-1.42988	-4.69115	429.6471
116	2.52735	2.79950	-0.27178	-1.20443	-3.95150	428.9074
0003	1.68318	0.23990	1.44365	-2.32038	-7.61270	432.5686
92	1.34628	1.75489	-0.40824	-1.21363	-3.98166	428.9376
86	2.63177	0.60675	2.02539	-0.33637	-1.10357	426.0595
0005	2.34385			1.40110	4.59673	420.3592

Closure error 0.0041
Distributed closure 0.0004
After distribution -0.0000

Site: Panels 3 & 4

Date: 1/26/89

Instrument used: NA-2 WILD to level

"Transverse Monument Line Over Panels 3 & 4"

				CORRECTED		
MON #	ROD READING			METERS	FEET	ELEV. FEET
0005	1.47455			1.47455	4.83770	420.3592
79	1.79608			1.79608	5.89258	419.3043
80	1.85606			1.85606	6.08936	419.1075
81	1.79735			1.79735	5.89675	419.3002
83	1.90838			1.90838	6.26101	418.9359
84	1.78545			1.78545	5.85770	419.3392
85	1.21820	3.98382	-2.76543	1.21820	3.99667	421.2002
86	2.51265			-0.25278	-0.82932	426.0262
87	0.60287			-2.16256	-7.09493	432.2918
88	0.04869			-2.71674	-8.91308	434.1100
89	0.46179			-2.30364	-7.55778	432.7547
90	1.09351			-1.67192	-5.48524	430.6821
91	1.43549			-1.32994	-4.36327	429.5602
92	1.70620			-1.05923	-3.47512	428.6720
93	1.82419	1.72395	0.10043	-0.94124	-3.08802	428.2849
CL Panel 4 94	1.82323			-0.84177	-2.76168	427.9586
95	2.19711			-0.46789	-1.53505	426.7320
96	2.43409			-0.23091	-0.75757	425.9545
97	2.40390			-0.26110	-0.85662	426.0535
98	1.87912			-0.78588	-2.57832	427.7752
99	0.81825			-1.84675	-6.05882	431.2557
100	0.67719			-1.98781	-6.52161	431.7185
101	1.03550			-1.62950	-5.34606	430.5430
102	1.29496			-1.37004	-4.49483	429.6917
103	0.85841			-1.80659	-5.92706	431.1240
104	0.43584			-2.22916	-7.31343	432.5103
0003	0.42672	1.90829	-1.48138	-2.23828	-7.34335	432.5403
105	2.03723			-2.10915	-6.91970	432.1166
106	1.89697			-2.24941	-7.37986	432.5768
107	1.62529			-2.52109	-8.27119	433.4681
108	1.46000			-2.68638	-8.81348	434.0104
109	1.62785			-2.51853	-8.26279	433.4597
110	1.77691			-2.36947	-7.77376	432.9707
111	2.24493			-1.90145	-6.23828	431.4352
CL Panel 3 116	3.03193			-1.11445	-3.65629	428.8532
P203	2.09318			-2.05320	-6.73614	431.9330
0003	1.90829	0.31295	1.59553	-2.23809	-7.34273	432.5396
91	1.22160	1.45606	-0.23427	-1.32925	-4.36100	429.5579
86	2.53244	0.26765	2.26498	-0.25268	-0.82899	426.0259
82	2.43238			1.91224	6.27368	418.9232
0005	1.99469			1.47455	4.83770	420.3592
Closure error				0.00114		
Distributed error				0.00019		
After distribution				0.00000		

Site: Panels 3 & 4
Date: 2/1/89
Instrument used: NA-2 WILD to level
"Transverse Monument Line Over Panels 3 & 4"

				CORRECTED		
MON #	ROD READING			METERS	FEET	ELEV. FEET
0005	2.53802			2.53802	8.32674	420.3592
79	2.86155			2.86155	9.38817	419.2978
80	2.92091			2.92091	9.58292	419.1030
81	2.86498			2.86498	9.39943	419.2865
82	2.98120			2.98120	9.78072	418.9052
83	2.98068			2.98068	9.77901	418.9069
84	2.86100			2.86100	9.38637	419.2996
85	2.29310			2.29310	7.52320	421.1627
86	0.82546	2.74938	-1.92407	0.82546	2.70817	425.9778
87	0.84292			-1.08115	-3.54704	432.2330
88	0.29380			-1.63027	-5.34859	434.0345
89	0.71587			-1.20820	-3.96386	432.6498
90	1.35748			-0.56659	-1.85887	430.5448
91	1.70479			-0.21928	-0.71941	429.4053
92	1.97681			0.05274	0.17303	428.5129
93	2.09492			0.17085	0.56052	428.1254
94	2.19585			0.27178	0.89166	427.7943
95	2.57052			0.64645	2.12087	426.5651
96	2.81065			0.88658	2.90869	425.7772
97	2.78168	2.38190	0.39963	0.85761	2.81365	425.8723
98	1.85295			0.32851	1.07778	427.6082
99	0.77000			-0.75444	-2.47517	431.1611
100	0.62391			-0.90053	-2.95446	431.6404
101	0.97782			-0.54662	-1.79335	430.4793
102	1.23630			-0.28814	-0.94533	429.6313
103	0.79715			-0.72729	-2.38609	431.0720
104	0.37222			-1.15222	-3.78020	432.4661
105	0.49265	1.94735	-1.45485	-1.03179	-3.38510	432.0710
106	1.80911			-1.17018	-3.83913	432.5251
107	1.53511			-1.44418	-4.73807	433.4240
108	1.37217			-1.60712	-5.27264	433.9586
109	1.53681			-1.44248	-4.73249	433.4184
110	1.68492			-1.29437	-4.24657	432.9325
111	2.15118			-0.82811	-2.71686	431.4028
103	2.25401	0.69972	1.55414	-0.72528	-2.37950	431.0654
93	1.59648	2.07725	-0.48092	0.17133	0.56210	428.1238
Fence	3.69000	1.77703	1.91282	1.78393	5.85272	422.8332
0005	2.53127			2.53802	8.32674	420.3592
Closure error			-0.00090			
Distributed error			-0.00015			
After distribution			-0.00000			

Site: Panels 3 & 4

Date: 2/6/89

Instrument used: NA-2 WILD to level

"Transverse Monument Line Over Panels 3 & 4"

MON #	ROD READING	CORRECTED ELEV.		
		METERS	FEET	FEET
0005	2.91010	2.91010	9.54746	420.3592
79	3.23413	3.23413	10.61053	419.2961
80	3.29549	3.29549	10.81184	419.0948
81	3.23932	3.23932	10.62756	419.2791
82	3.35696	3.35696	11.01351	418.8931
83	3.35485	3.35485	11.00659	418.9001
84	3.23544	3.23544	10.61483	419.2918
85	2.67000	2.67000	8.75974	421.1469
86	1.20285	2.53838 -1.33550	1.20285	3.94631
87	0.63081		-0.70469	-2.31194
88	0.08101		-1.25449	-4.11573
89	0.50413		-0.83137	-2.72755
90	1.14678		-0.18872	-0.61915
91	1.49678		0.16128	0.52913
92	1.77001		0.43451	1.42555
93	1.88861		0.55311	1.81465
94	1.99051		0.65501	2.14896
95	2.36615		1.03065	3.38136
96	2.60502		1.26952	4.16505
97	2.57762	2.06755 0.51010	1.24212	4.07515
98	1.53908		0.71368	2.34145
99	0.45468		-0.37072	-1.21625
100	0.31000		-0.51540	-1.69091
101	0.66124		-0.16416	-0.53857
102	0.91801		0.09261	0.30385
103	0.48076	2.26448 -1.78369	-0.34464	-1.13068
104	1.83727		-0.77182	-2.53217
105	1.95586		-0.65323	-2.14310
106	1.81652		-0.79257	-2.60025
107	1.54218		-1.06691	-3.50030
108	1.37906		-1.23003	-4.03547
109	1.54231		-1.06678	-3.49988
110	1.69166		-0.91743	-3.00989
111	2.15535		-0.45374	-1.48861
101	2.44809	0.48454 1.96358	-0.16100	-0.52819
93	1.20385	1.91958 -0.71570	0.55835	1.83182
86	2.56893	0.50245 2.06651	1.20773	3.96232
0005	2.20479		2.91010	9.54746
				420.3592
Closure error		0.00019		
Distributed error		0.00003		
After distribution		0.00000		

Site: Panels 3 & 4

Date: 4/11/89

Instrument used: NA-2 WILD to level

"Transverse Monument Line Over Panels 3 & 4"

MON #	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
0005	2.14570			2.14570	7.03961	420.3548
79	2.46955			2.46955	8.10210	419.2923
80	2.53161			2.53161	8.30571	419.0887
81	2.47405	2.84015	-0.36566	2.47405	8.11686	419.2775
82	2.95635			2.59069	8.49954	418.8949
83	2.95510			2.58944	8.49544	418.8990
84	2.83777			2.47211	8.11050	419.2839
85	2.27435			1.90869	6.26203	421.1324
86	0.80949	3.40837	-2.59844	0.44383	1.45612	425.9383
87	1.50390			-1.46020	-4.79062	432.1850
88	0.95775			-2.00635	-6.58243	433.9768
89	1.38633			-1.57777	-5.17634	432.5708
90	2.04815			-0.91595	-3.00504	430.3995
91	2.40518			-0.55892	-1.83370	429.2281
92	2.68086			-0.28324	-0.92925	428.3237
93	2.80100	0.75688	2.04456	-0.16310	-0.53509	427.9295
94	0.85833			-0.06121	-0.20081	427.5952
95	1.23494			0.31540	1.03477	426.3596
96	1.47565			0.55611	1.82450	425.5699
97	1.45406			0.53452	1.75366	425.6407
98	0.93395	2.19177	-1.25738	0.01441	0.04729	427.3471
99	1.11790			-1.05902	-3.47442	430.8688
100	0.97900			-1.19792	-3.93012	431.3245
101	1.33411			-0.84281	-2.76508	430.1595
102	1.59331			-0.58361	-1.91469	429.3091
103	1.15335			-1.02357	-3.35812	430.7525
104	0.72676	1.80360	-1.07640	-1.45016	-4.75767	432.1521
105	1.92197			-1.33134	-4.36788	431.7623
106	1.78170			-1.47161	-4.82807	432.2225
107	1.50610			-1.74721	-5.73226	433.1267
108	1.34125			-1.91206	-6.27310	433.6675
109	1.50226			-1.75105	-5.74486	433.1393
110	1.64883			-1.60448	-5.26399	432.6584
111	2.09346			-1.15985	-3.80525	431.1997
104	1.80360	1.10781	0.69623	-1.44971	-4.75622	432.1506
0003	1.80695			-0.75013	-2.46104	429.8555
95	2.87198	2.30238	0.57004	0.31490	1.03311	426.3613
89	0.41051	0.56323	-0.15228	-1.57653	-5.17229	432.5667
86	2.58263	0.15849	2.42458	0.44331	1.45440	425.9400
81	2.19000	1.98000	0.21044	2.47526	8.12083	419.2736
0005	1.65000			2.14570	7.03961	420.3548

Closure error 0.00441
Distributed error 0.00044
After distribution -0.00000

JEFFERSON CTY - REND LAKE
ELEVATIONS CHANGES FROM 6/30/88 TO 12/03/92
TRANSVERSE MONUMENT LINE OVER PANELS 3 AND 4

MON #	9/1/88 SUBS. FEET	9/6/88 SUBS. FEET	9/7/88 SUBS. FEET	9/8/88 SUBS. FEET	9/9/88*** SUBS. FEET	9/14/88*** SUBS. FEET	MON #
0005	NA	NA	NA	NA	NA	NA	0005
79	NA	NA	NA	NA	NA	NA	79
80	NA	NA	NA	NA	NA	NA	80
81	NA	NA	NA	NA	NA	NA	81
82	NA	NA	NA	NA	NA	NA	82
83	NA	NA	NA	NA	NA	NA	83
84	NA	NA	NA	NA	NA	NA	84
85	NA	NA	NA	NA	NA	NA	85
**86	NA	NA	NA	NA	NA	NA	**86
87	NA	NA	NA	NA	NA	NA	87
88	NA	NA	NA	NA	NA	NA	88
89	NA	NA	NA	NA	NA	NA	89
90	NA	NA	NA	NA	NA	NA	90
91	NA	NA	NA	NA	NA	NA	91
92	NA	NA	NA	NA	NA	NA	92
93	NA	NA	NA	NA	NA	NA	93
CL Panel 4 94	NA	NA	NA	NA	NA	NA	CL Panel 4 94
95	NA	NA	NA	NA	NA	NA	95
96	NA	NA	NA	NA	NA	NA	96
97	NA	NA	NA	NA	NA	NA	97
**98	NA	NA	NA	NA	NA	NA	**98
**99	NA	NA	NA	NA	NA	NA	**99
100	0.0260	0.0328	0.0374	0.0409	-0.0116	-0.0120	100
101	0.0237	0.0199	0.0315	0.0298	-0.0187	-0.0179	101
102	0.0155	0.0165	0.0130	0.0202	-0.0364	-0.0216	102
103	-0.0012	-0.0045	0.0058	-0.0015	-0.0512	-0.0483	103
104	-0.0013	-0.0094	0.0001	-0.0057	-0.0520	-0.0519	104
105	-0.0187	-0.0118	-0.0001	-0.0083	-0.0657	-0.0616	105
106	-0.0190	-0.0246	-0.0271	-0.0210	-0.0752	-0.0847	106
107	-0.0260	-0.0317	-0.0354	-0.0377	-0.0911	-0.1013	107
108	-0.0324	-0.0497	-0.0509	-0.0566	-0.1133	-0.1340	108
109	-0.0597	-0.0788	-0.0902	-0.1016	-0.1567	-0.1973	109
110	-0.0523	-0.0914	-0.1097	-0.1304	-0.1959	-0.2632	110
111	-0.0841	-0.1554	-0.1870	-0.2464	-0.3899	-0.7885	111
112	-0.1457	-0.3385	-0.4857	-1.2483	-1.9349	-3.2965	112
113	-0.1918	-0.5147	-0.7336	-1.8492	-2.7590	-4.3134	113
114	-0.2337	-0.6847	-0.9343	-2.2962	-3.3372	-4.9152	114
115	-0.2700	-0.8205	-1.0903	-2.5445	-3.6319	-5.1749	115
CL Panel 3 116	-0.3059	-0.8907	-1.1716	-2.6079	-3.7009	-5.2418	CL Panel 3 116
117	-0.2849	-0.8869	-1.1484	-2.3253	-3.5789	-5.1086	117
118	-0.2826	-0.7751	-1.0342		-3.3154	-4.8712	118
119	-0.2960	-0.6520	-0.8732		-2.9394	-4.3163	119
120	-0.3036	-0.5190	-0.6477		-2.0511	-3.1577	120
121	-0.2658	-0.4215	-0.4764		-0.9138	-1.2834	121
122	-0.2389	-0.3519	-0.3879		-0.6629	-0.8438	122
123	-0.2333	-0.3241	-0.3437		-0.5879	-0.7269	123
124	-0.2487	-0.3249	-0.3365		-0.5640	-0.6791	124
125	-0.1820	-0.2426	-0.2534		-0.4740	-0.5704	125
126	-0.1718	-0.2220	-0.2462		-0.4423	-0.5251	126
127	-0.1614	-0.2077	-0.2300		-0.3971	-0.4922	127
128	-0.1770	-0.2206	-0.2373		-0.4114	-0.4921	128
129	-0.1759	-0.2145	-0.2352		-0.4039	-0.4958	129
130	-0.1527	-0.1895	-0.2017		-0.3789	-0.4418	130
131	-0.1616	-0.1997	-0.2181		-0.3849	-0.4430	131
132	-0.1528	-0.1789	-0.1950		-0.3674	-0.4314	132
133	-0.1265	-0.1474	-0.1708		-0.3419	-0.4030	133

* Baseline elevations of M79 - M99 determined

on 1/12/89.

Baseline elevations of M100 - M133 were determined by ISGS using Total Station instrument on 6/30/88.

** Estimated elevation based on surveys of 1/12/89 and 1/17/89.

*** Surveys with closure errors greater than 0.03 feet.

JEFFERSON CTY - REND LAKE
ELEVATIONS CHANGES FROM 6/30/88 TO 12/03/92
TRANSVERSE MONUMENT LINE OVER PANELS 3 AND 4

MON #	9/15/88 SUBS. FEET	9/23/88 SUBS. FEET	9/27/88 SUBS. FEET	10/11/88 SUBS. FEET	11/17/88 SUBS. FEET	1/17/89 SUBS. FEET	MON #
0005	NA	NA	NA	NA	NA	0.0003	0005
79	NA	NA	NA	NA	NA	0.0237	79
80	NA	NA	NA	NA	NA	0.0272	80
81	NA	NA	NA	NA	NA	0.0290	81
82	NA	NA	NA	NA	NA	0.0306	82
83	NA	NA	NA	NA	NA	0.0325	83
84	NA	NA	NA	NA	NA	0.0183	84
85	NA	NA	NA	NA	NA	0.0152	85
**86	NA	NA	NA	NA	NA	-0.0027	**86
87	NA	NA	NA	NA	NA	-0.0219	87
88	NA	NA	NA	NA	NA	-0.0596	88
89	NA	NA	NA	NA	NA	-0.0903	89
90	NA	NA	NA	NA	NA	-0.1549	90
91	NA	NA	NA	NA	NA	-0.2167	91
92	NA	NA	NA	NA	NA	-0.2783	92
93	NA	NA	NA	NA	NA	-0.3308	93
CL Panel 4 94	NA	NA	NA	NA	NA	-0.3585	CL Panel 4 94
95	NA	NA	NA	NA	NA	-0.3426	95
96	NA	NA	NA	NA	NA	-0.3062	96
97	NA	NA	NA	NA	NA	-0.2470	97
**98	NA	NA	NA	NA	NA	-0.2700	**98
**99	NA	NA	NA	NA	NA	-0.2931	**99
100	-0.0078	0.0048	-0.0107	-0.0518	-0.0588	-0.3392	100
101	-0.0168	-0.0043	-0.0120	-0.0575	-0.0679	-0.3032	101
102	-0.0239	-0.0230	-0.0270	-0.0723	-0.0866	-0.2797	102
103	-0.0538	-0.0526	-0.0453	-0.0985	-0.1076	-0.2928	103
104	-0.0482	-0.0593	-0.0593	-0.1056	-0.1223	-0.2985	104
105	-0.0535	-0.0805	-0.0777	-0.1302	-0.1451	-0.3056	105
106	-0.0844	-0.1013	-0.1066	-0.1539	-0.1662	-0.3139	106
107	-0.1053	-0.1342	-0.1390	-0.1926	-0.2080	-0.3426	107
108	-0.1440	-0.1847	-0.1938	-0.2511	-0.2719	-0.3997	108
109	-0.2108	-0.2618	-0.2756	-0.3392	-0.3576	-0.4828	109
110	-0.2847	-0.3578	-0.3721	-0.4405	-0.4617	-0.5795	110
111	-0.8708	-1.0430	-1.0647	-1.1426	-1.1394	-1.2961	111
112	-3.4724	-3.8360	-3.8767	-3.9780	-4.0053	NA	112
113	-4.4929	-4.8717	-4.9132	-5.0170	-5.0561	NA	113
114	-5.0936	-5.4675	-5.5167	-5.6231	-5.6583	NA	114
115	-5.3520	-5.7303	-5.7811	-5.8870	-5.9236	NA	115
CL Panel 3 116	-5.4156	-5.8016	-5.8488	-5.9561	-6.0001	-6.1335	CL Panel 3 116
117	-5.2872	-5.6740	-5.7254	-5.8385	NA	NA	117
118	-5.0574	-5.4588	-5.5135	-5.6308	NA	NA	118
119	-4.4959	-4.9157	-4.9745	-5.1021	NA	NA	119
120	-3.3225	-3.7413	-3.8015	-3.9376	NA	NA	120
121	-1.4061	-1.7758	-1.8402	-1.9856	NA	NA	121
122	-0.9269	-1.2461	-1.3213	-1.4635	-1.5332	-1.6383	122
123	-0.8036	-1.0997	-1.1742	-1.3201	-1.4170	-1.4875	123
124	-0.7458	-1.0251	-1.1011	-1.2461	-1.3080	-1.4133	124
125	-0.6297	-0.8951	-0.9713	-1.1163	-1.0863	-1.2799	125
126	-0.5851	-0.8399	-0.9150	-1.0586	-1.0618	-1.2261	126
127	-0.5515	-0.7975	-0.8588	-1.0129	-1.0249	-1.1816	127
128	-0.5463	-0.7951	-0.8596	-1.0121	-1.0171	-1.1732	128
129	-0.5347	-0.7763	-0.8440	-0.9935	-0.9950	-1.1526	129
130	-0.4975	-0.7406	-0.8092	-0.9549	-0.9562	-1.1140	130
131	-0.4964	-0.7341	-0.8050	-0.9478	-0.9464	-1.1091	131
132	-0.4798	-0.7096	-0.7804	-0.9192	-0.9193	-1.1119	132
133	-0.4277	-0.6656	-0.7352	-0.8701	-0.8681	-1.0265	133

JEFFERSON CTY-REND LAKE
ELEVATIONS CHANGES FROM 6/30/88 TO 12/03/92
TRANSVERSE MONUMENT LINE OVER PANELS 3 AND 4

MON #	1/23/89 SUBS. FEET	1/26/89 SUBS. FEET	2/1/89 SUBS. FEET	2/6/89 SUBS. FEET	4/11/89 SUBS. FEET	12/12/89 SUBS. FEET	MON #
0005	0.0003	0.0003	0.0003	0.0003	-0.0041	-0.0041	0005
79	0.0216	0.0253	0.0188	0.0171	0.0133	NA	79
80	0.0186	0.0225	0.0180	0.0098	0.0037	0.0122	80
81	0.0143	0.0182	0.0045	-0.0029	-0.0045	-0.0076	81
82	0.0077	0.0062	-0.0118	-0.0239	-0.0221	NA	82
83	-0.0014	-0.0111	-0.0401	-0.0469	-0.0480	NA	83
84	-0.0340	-0.0478	-0.0874	-0.0952	-0.1031	NA	84
85	-0.0635	-0.0888	-0.1263	-0.1421	-0.1566	NA	85
**86	-0.1213	-0.1526	-0.2011	-0.2185	-0.2406	-0.2856	**86
87	-0.2114	-0.2562	-0.3150	-0.3294	-0.3630	-0.4102	87
88	-0.4070	-0.4710	-0.5465	-0.5586	-0.6042	-0.6549	88
89	-1.3063	-1.4343	-1.5392	-1.5548	-1.6182	-1.6928	89
90	-3.2203	-3.4499	-3.5872	-3.6062	-3.7325	-3.8540	90
91	-4.3246	-4.5878	-4.7427	-4.7705	-4.9199	-5.0527	91
92	-4.9483	-5.2190	-5.3781	-5.4099	-5.5673	-5.6689	92
93	-5.2991	-5.5701	-5.7296	-5.7630	-5.9255	-6.0632	93
CL Panel 4 94	-5.4136	-5.6874	-5.8517	-5.8883	-6.0508	-6.1891	CL Panel 4 94
95	-5.3728	-5.6570	-5.8239	-5.8637	-6.0294	-6.1745	95
96	-5.0259	-5.3265	-5.5038	-5.5394	-5.7111	-5.8720	96
97	-4.2089	-4.5335	-4.7147	-4.7555	-4.9463	-5.1139	97
**98	-2.9773	-3.2840	-3.4510	-3.4940	-3.7121	-3.8914	**98
**99	-1.1139	-1.1972	-1.2918	-1.3300	-1.5841	-1.7825	**99
100	-0.7295	-0.7915	-0.8696	-0.9124	-1.1855	-1.3891	100
101	-0.5539	-0.6020	-0.6657	-0.6998	-0.9855	-1.1899	101
102	-0.4550	-0.4933	-0.5537	-0.5822	-0.8759	-1.0726	102
103	-0.4651	-0.4630	-0.5150	-0.5497	-0.8345	-1.0333	103
104	-0.4156	-0.4497	-0.4939	-0.5212	-0.8079	-1.0046	104
105	-0.4050	-0.4354	-0.4810	-0.5022	-0.7897	-0.9752	105
106	-0.4094	-0.4312	-0.4829	-0.5011	-0.7855	-0.9715	106
107	-0.4312	-0.4519	-0.4960	-0.5130	-0.7933	-0.9983	107
108	-0.4815	-0.4906	-0.5424	-0.5589	-0.8335	-1.0220	108
109	-0.5564	-0.5733	-0.6146	-0.6265	-0.8937	-1.0768	109
110	-0.6451	-0.6603	-0.6985	-0.7145	-0.9726	-1.1598	110
111	-1.3593	-1.3718	-1.4042	-1.4117	-1.6073	-1.8382	111
112	NA	NA	NA	NA	NA	NA	112
113	NA	NA	NA	NA	NA	NA	113
114	NA	NA	NA	NA	NA	NA	114
115	NA	NA	NA	NA	NA	NA	115
CL Panel 3 116	-6.1665	-6.1888	NA	NA	NA	-6.3716	CL Panel 3 116
117	NA	NA	NA	NA	NA	NA	117
118	NA	NA	NA	NA	NA	NA	118
119	NA	NA	NA	NA	NA	NA	119
120	NA	NA	NA	NA	NA	NA	120
121	NA	NA	NA	NA	NA	NA	121
122	-1.6639	NA	NA	NA	NA	-1.8148	122
123	-1.5141	NA	NA	NA	NA	-1.6470	123
124	-1.4379	NA	NA	NA	NA	-1.5608	124
125	-1.3016	NA	NA	NA	NA	-1.4195	125
126	-1.2455	NA	NA	NA	NA	-1.3597	126
127	-1.1642	NA	NA	NA	NA	-1.3006	127
128	-1.1381	NA	NA	NA	NA	-1.2840	128
129	-1.1335	NA	NA	NA	NA	-1.2577	129
130	-1.0944	NA	NA	NA	NA	-1.2148	130
131	-1.0862	NA	NA	NA	NA	-1.2022	131
132	-1.0558	NA	NA	NA	NA	-1.1697	132
133	-1.0072	NA	NA	NA	NA	-1.1102	133

JEFFERSON CTY - REND LAKE
ELEVATIONS CHANGES FROM 6/30/88 TO 12/03/92
TRANSVERSE MONUMENT LINE OVER PANELS 3 AND 4

MON #	11/14/90 SUBS. FEET	2/4/91 SUBS. FEET	5/9/91 SUBS. FEET	12/10/91 SUBS. FEET	4/15/92 SUBS. FEET	12/03/92 SUBS. FEET	MON #
0005	0.0228	0.0309	0.0245	0.0375	0.0228	0.0680	0005
79	0.0326	NA	NA	0.0240	-0.0083	0.0139	79
80	0.0143	NA	NA	0.0045	-0.0421	NA	80
81	0.0070	NA	NA	-0.0246	-0.0768	-0.0887	81
82	NA	NA	NA	NA	NA	NA	82
83	NA	NA	NA	NA	NA	NA	83
84	NA	NA	NA	NA	NA	NA	84
85	NA	NA	NA	NA	NA	NA	85
**86	-0.2949	NA	NA	-0.3728	-0.4681	-0.5440	**86
87	-0.4394	NA	NA	-0.5137	-0.6147	-0.6914	87
88	-0.7014	NA	NA	NA	NA	NA	88
89	-1.7788	NA	NA	-1.8544	-1.9495	-2.0086	89
90	-4.1081	NA	-4.1871	-4.2320	-4.3176	-4.3611	90
91	-5.3410	NA	NA	-5.4757	-5.5576	NA	91
92	-5.9910	NA	NA	-6.1261	-6.2041	NA	92
93	-6.3511	-6.3919	NA	-6.4976	-6.5578	NA	93
CL Panel 4 94	-6.4771	NA	NA	-6.6199	-6.6787	-6.6857	CL Panel 4 94
95	-6.4597	NA	NA	NA	-6.6561	NA	95
96	-6.1414	NA	-6.1826	NA	-6.3427	NA	96
97	-5.3832	NA	NA	NA	-5.5876	NA	97
**98	-4.1670	NA	NA	NA	-4.3660	NA	**98
**99	-2.0544	-2.0950	NA	-2.2125	-2.2623	NA	**99
100	-1.6599	NA	NA	-1.8225	-1.8735	NA	100
101	-1.4575	NA	NA	-1.6263	-1.6750	-1.6639	101
102	-1.3432	NA	NA	NA	-1.5633	-1.5503	102
103	-1.3034	NA	NA	-1.4754	-1.5216	-1.5070	103
104	-1.2706	NA	NA	NA	NA	NA	104
105	-1.2436	-1.2947	NA	NA	-1.4695	-1.4488	105
106	-1.2328	-1.2886	-1.2692	NA	NA	NA	106
107	-1.2571	-1.3106	NA	-1.4364	-1.4820	-1.4704	107
108	-1.2831	-1.3342	NA	NA	2.6579	NA	108
109	-1.3374	-1.3813	NA	-1.5112	-1.5519	-1.5467	109
110	-1.4136	-1.4469	NA	-1.5786	-1.6102	NA	110
111	-2.0765	-2.0887	-2.3034	-2.2528	-2.2451	-2.2717	111
112	NA	NA	NA	NA	NA	NA	112
113	NA	NA	NA	NA	NA	NA	113
114	NA	NA	NA	NA	NA	NA	114
115	NA	NA	NA	NA	NA	NA	115
CL Panel 3 116	-6.5353	-6.5716	-6.6293	-6.6770	-6.7094	-6.6848	CL Panel 3 116
117	NA	NA	NA	NA	NA	NA	117
118	NA	NA	NA	NA	NA	NA	118
119	NA	NA	NA	NA	NA	NA	119
120	NA	NA	NA	NA	NA	NA	120
121	NA	NA	NA	NA	NA	NA	121
122	-1.9673	-1.9988	NA	NA	NA	NA	122
123	-1.7897	-1.8430	NA	NA	NA	NA	123
124	-1.7086	-1.7531	NA	NA	NA	NA	124
125	-1.5657	-1.6056	NA	NA	NA	NA	125
126	-1.4980	-1.5358	NA	NA	NA	NA	126
127	-1.4512	-1.4773	NA	-1.5812	-1.6111	-1.5864	127
128	-1.4263	-1.4553	NA	NA	NA	NA	128
129	-1.3941	-1.4180	NA	NA	NA	NA	129
130	-1.3300	-1.3662	NA	NA	NA	NA	130
131	-1.3274	-1.3485	NA	NA	NA	NA	131
132	-1.2732	-1.3077	NA	NA	NA	NA	132
133	-1.2286	-1.2481	NA	NA	NA	NA	133

JEFFERSON CTY-REND LAKE
MONUMENT ELEVATIONS FROM 6/30/88 TO 12/03/92
TRANSVERSE MONUMENT LINE OVER PANELS 3 AND 4

MON #	Baseline * ELEV. FEET	9/1/88 ELEV. FEET	9/6/88 ELEV. FEET	9/7/88 ELEV. FEET	9/8/88 ELEV. FEET	9/9/88*** ELEV. FEET	MON #
0005	420.3589	NA	NA	NA	NA	NA	0005
79	419.279	NA	NA	NA	NA	NA	79
80	419.085	NA	NA	NA	NA	NA	80
81	419.282	NA	NA	NA	NA	NA	81
82	418.917	NA	NA	NA	NA	NA	82
83	418.947	NA	NA	NA	NA	NA	83
84	419.387	NA	NA	NA	NA	NA	84
85	421.289	NA	NA	NA	NA	NA	85
** 86	426.179	NA	NA	NA	NA	NA	86
87	432.548	NA	NA	NA	NA	NA	87
88	434.581	NA	NA	NA	NA	NA	88
89	434.189	NA	NA	NA	NA	NA	89
90	434.132	NA	NA	NA	NA	NA	90
91	434.148	NA	NA	NA	NA	NA	91
92	433.891	NA	NA	NA	NA	NA	92
93	433.855	NA	NA	NA	NA	NA	93
CL Panel 4 94	433.646	NA	NA	NA	NA	NA	CL Panel 4 94
95	432.389	NA	NA	NA	NA	NA	95
96	431.281	NA	NA	NA	NA	NA	96
97	430.587	NA	NA	NA	NA	NA	97
** 98	431.059	NA	NA	NA	NA	NA	98
** 99	432.453	NA	NA	NA	NA	NA	99
100	432.510	432.5360	432.5428	432.5474	432.5509	432.4984	100
101	431.145	431.1687	431.1649	431.1765	431.1748	431.1263	101
102	430.185	430.2005	430.2015	430.1980	430.2052	430.1486	102
103	431.587	431.5858	431.5825	431.5928	431.5855	431.5358	103
104	432.960	432.9587	432.9506	432.9601	432.9543	432.9080	104
105	432.552	432.5333	432.5402	432.5519	432.5437	432.4863	105
106	433.008	432.9890	432.9834	432.9809	432.9870	432.9328	106
107	433.920	433.8940	433.8883	433.8846	433.8823	433.8289	107
108	434.501	434.4686	434.4513	434.4501	434.4444	434.3877	108
109	434.033	433.9733	433.9542	433.9428	433.9314	433.8763	109
110	433.631	433.5787	433.5396	433.5213	433.5006	433.4351	110
111	432.807	432.7229	432.6516	432.6200	432.5606	432.4171	111
112	432.894	432.7483	432.5555	432.4083	431.6457	430.9591	112
113	433.889	433.6972	433.3743	433.1554	432.0398	431.1300	113
114	434.587	434.3533	433.9023	433.6527	432.2908	431.2498	114
115	434.848	434.5780	434.0275	433.7577	432.3035	431.2161	115
CL Panel 3 116	435.042	434.7361	434.1513	433.8704	432.4341	431.3411	CL Panel 3 116
117	434.875	434.5901	433.9881	433.7266	432.5497	431.2961	117
118	434.33	434.0474	433.5549	433.2958		431.0146	118
119	433.099	432.8029	432.4470	432.2258		430.1596	119
120	432.596	432.2924	432.0770	431.9483		430.5449	120
121	432.643	432.3772	432.2215	432.1666		431.7292	121
122	433.785	433.5461	433.4331	433.3971		433.1221	122
123	434.808	434.5747	434.4839	434.4643		434.2201	123
124	435.105	434.8563	434.7801	434.7685		434.5410	124
125	435.228	435.0460	434.9854	434.9746		434.7540	125
126	435.306	435.1342	435.0840	435.0598		434.8637	126
127	436.05	435.8886	435.8423	435.8200		435.6529	127
128	435.448	435.2710	435.2274	435.2107		435.0366	128
129	435.003	434.8271	434.7885	434.7678		434.5991	129
130	435.068	434.9153	434.8785	434.8663		434.6891	130
131	435.353	435.1914	435.1533	435.1349		434.9681	131
132	435.063	434.9102	434.8841	434.8680		434.6956	132
133	434.397	434.2705	434.2496	434.2262		434.0551	133

* Baseline elevations of M79-M99 determined

on 1/12/89.

Baseline elevations of M100-M133 were determined by ISGS using Total Station instrument on 6/30/88.

** Estimated elevation based on surveys of 1/12/89 and 1/17/89.

*** Surveys with closure errors greater than 0.03 feet.

JEFFERSON CTY - REND LAKE
MONUMENT ELEVATIONS FROM 6/30/88 TO 12/03/92
TRANSVERSE MONUMENT LINE OVER PANELS 3 AND 4

MON #	9/14/88*** ELEV. FEET	9/15/88 ELEV. FEET	9/23/88 ELEV. FEET	9/27/88 ELEV. FEET	10/11/88 ELEV. FEET	11/17/88 ELEV. FEET	MON #
0005	NA	NA	NA	NA	NA	NA	0005
79	NA	NA	NA	NA	NA	NA	79
80	NA	NA	NA	NA	NA	NA	80
81	NA	NA	NA	NA	NA	NA	81
82	NA	NA	NA	NA	NA	NA	82
83	NA	NA	NA	NA	NA	NA	83
84	NA	NA	NA	NA	NA	NA	84
85	NA	NA	NA	NA	NA	NA	85
** 86	NA	NA	NA	NA	NA	NA	86
87	NA	NA	NA	NA	NA	NA	87
88	NA	NA	NA	NA	NA	NA	88
89	NA	NA	NA	NA	NA	NA	89
90	NA	NA	NA	NA	NA	NA	90
91	NA	NA	NA	NA	NA	NA	91
92	NA	NA	NA	NA	NA	NA	92
93	NA	NA	NA	NA	NA	NA	93
CL Panel 4 94	NA	NA	NA	NA	NA	NA	CL Panel 4 94
95	NA	NA	NA	NA	NA	NA	95
96	NA	NA	NA	NA	NA	NA	96
97	NA	NA	NA	NA	NA	NA	97
** 98	NA	NA	NA	NA	NA	NA	98
** 99	NA	NA	NA	NA	NA	NA	99
100	432.4980	432.5022	432.5148	432.4993	432.4582	432.4512	100
101	431.1271	431.1282	431.1407	431.1330	431.0875	431.0771	101
102	430.1634	430.1611	430.1620	430.1580	430.1127	430.0984	102
103	431.5387	431.5332	431.5344	431.5417	431.4885	431.4794	103
104	432.9081	432.9118	432.9007	432.9007	432.8544	432.8377	104
105	432.4904	432.4985	432.4715	432.4743	432.4218	432.4069	105
106	432.9233	432.9236	432.9067	432.9014	432.8541	432.8418	106
107	433.8187	433.8147	433.7858	433.7810	433.7274	433.7120	107
108	434.3670	434.3570	434.3163	434.3072	434.2499	434.2291	108
109	433.8357	433.8222	433.7712	433.7574	433.6938	433.6754	109
110	433.3678	433.3463	433.2732	433.2589	433.1905	433.1693	110
111	432.0185	431.9362	431.7640	431.7423	431.6644	431.6676	111
112	429.5975	429.4216	429.0580	429.0173	428.9160	428.8887	112
113	429.5756	429.3961	429.0173	428.9758	428.8720	428.8329	113
114	429.6718	429.4934	429.1195	429.0703	428.9639	428.9287	114
115	429.6731	429.4960	429.1177	429.0669	428.9610	428.9244	115
CL Panel 3 116	429.8002	429.6284	429.2404	429.1932	429.0859	429.0419	CL Panel 3 116
117	429.7664	429.5878	429.2010	429.1496	429.0365	NA	117
118	429.4588	429.2726	428.8712	428.8165	428.6992	NA	118
119	428.7827	428.6031	428.1833	428.1245	427.9969	NA	119
120	429.4383	429.2735	428.8547	428.7945	428.6584	NA	120
121	431.3596	431.2369	430.8672	430.8028	430.6574	NA	121
122	432.9412	432.8581	432.5389	432.4637	432.3215	432.2518	122
123	434.0811	434.0044	433.7083	433.6338	433.4879	433.3910	123
124	434.4259	434.3592	434.0799	434.0039	433.8589	433.7970	124
125	434.6576	434.5983	434.3329	434.2567	434.1117	434.1417	125
126	434.7809	434.7209	434.4661	434.3910	434.2474	434.2442	126
127	435.5578	435.4985	435.2525	435.1912	435.0371	435.0251	127
128	434.9559	434.9017	434.6529	434.5884	434.4359	434.4309	128
129	434.5072	434.4683	434.2267	434.1590	434.0095	434.0080	129
130	434.6262	434.5705	434.3274	434.2588	434.1131	434.1118	130
131	434.9100	434.8566	434.6189	434.5480	434.4052	434.4066	131
132	434.6316	434.5832	434.3534	434.2826	434.1438	434.1437	132
133	433.9940	433.9693	433.7314	433.6618	433.5269	433.5289	133

JEFFERSON CTY-REND LAKE
MONUMENT ELEVATIONS FROM 6/30/88 TO 12/03/92
TRANSVERSE MONUMENT LINE OVER PANELS 3 AND 4

MON #	1/17/89 ELEV. FEET	1/23/89 ELEV. FEET	1/26/89 ELEV. FEET	2/1/89 ELEV. FEET	2/6/89 ELEV. FEET	4/11/89 ELEV. FEET	MON #
0005	420.3592	420.3592	420.3592	420.3592	420.3592	420.3548	0005
79	419.3027	419.3006	419.3043	419.2978	419.2961	419.2923	79
80	419.1122	419.1036	419.1075	419.1030	419.0948	419.0887	80
81	419.3110	419.2963	419.3002	419.2865	419.2791	419.2775	81
82	418.9476	418.9247	418.9232	418.9052	418.8931	418.8949	82
83	418.9795	418.9456	418.9359	418.9069	418.9001	418.8990	83
84	419.4053	419.3530	419.3392	419.2996	419.2918	419.2839	84
85	421.3042	421.2255	421.2002	421.1627	421.1469	421.1324	85
** 86	426.1762	426.0575	426.0262	425.9778	425.9603	425.9383	86
87	432.5261	432.3366	432.2918	432.2330	432.2186	432.1850	87
88	434.5214	434.1740	434.1100	434.0345	434.0224	433.9768	88
89	434.0987	432.8827	432.7547	432.6498	432.6342	432.5708	89
90	433.9771	430.9117	430.6821	430.5448	430.5258	430.3995	90
91	433.9313	429.8234	429.5602	429.4053	429.3775	429.2281	91
92	433.6127	428.9427	428.6720	428.5129	428.4811	428.3237	92
93	433.5242	428.5559	428.2849	428.1254	428.0920	427.9295	93
CL Panel 4 94	433.2875	428.2324	427.9586	427.7943	427.7577	427.5952	CL Panel 4 94
95	432.0464	427.0162	426.7320	426.5651	426.5253	426.3596	95
96	430.9748	426.2551	425.9545	425.7772	425.7416	425.5699	96
97	430.3400	426.3781	426.0535	425.8723	425.8315	425.6407	97
** 98	430.7891	428.0819	427.7752	427.6082	427.5652	427.3471	98
** 99	432.1598	431.3390	431.2557	431.1611	431.1229	430.8688	99
100	432.1708	431.7805	431.7185	431.6404	431.5976	431.3245	100
101	430.8418	430.5911	430.5430	430.4793	430.4452	430.1595	101
102	429.9053	429.7300	429.6917	429.6313	429.6028	429.3091	102
103	431.2942	431.1219	431.1240	431.0720	431.0373	430.7525	103
104	432.6615	432.5444	432.5103	432.4661	432.4388	432.1521	104
105	432.2464	432.1470	432.1166	432.0710	432.0498	431.7623	105
106	432.6941	432.5986	432.5768	432.5251	432.5069	432.2225	106
107	433.5774	433.4888	433.4681	433.4240	433.4070	433.1267	107
108	434.1013	434.0195	434.0104	433.9586	433.9421	433.6675	108
109	433.5502	433.4766	433.4597	433.4184	433.4065	433.1393	109
110	433.0515	432.9859	432.9707	432.9325	432.9165	432.6584	110
111	431.5109	431.4477	431.4352	431.4028	431.3953	431.1997	111
112	NA	NA	NA	NA	NA	NA	112
113	NA	NA	NA	NA	NA	NA	113
114	NA	NA	NA	NA	NA	NA	114
115	NA	NA	NA	NA	NA	NA	115
CL Panel 3 116	428.9085	428.8755	428.8532	NA	NA	NA	CL Panel 3 116
117	NA	NA	NA	NA	NA	NA	117
118	NA	NA	NA	NA	NA	NA	118
119	NA	NA	NA	NA	NA	NA	119
120	NA	NA	NA	NA	NA	NA	120
121	NA	NA	NA	NA	NA	NA	121
122	432.1467	432.1211	NA	NA	NA	NA	122
123	433.3205	433.2939	NA	NA	NA	NA	123
124	433.6917	433.6671	NA	NA	NA	NA	124
125	433.9481	433.9264	NA	NA	NA	NA	125
126	434.0799	434.0605	NA	NA	NA	NA	126
127	434.8684	434.8858	NA	NA	NA	NA	127
128	434.2748	434.3099	NA	NA	NA	NA	128
129	433.8504	433.8695	NA	NA	NA	NA	129
130	433.9540	433.9736	NA	NA	NA	NA	130
131	434.2439	434.2668	NA	NA	NA	NA	131
132	433.9511	434.0072	NA	NA	NA	NA	132
133	433.3705	433.3898	NA	NA	NA	NA	133

ILLINOIS STATE
GEOLOGICAL SURVEY
LIBRARY
FEB 05 1998

JEFFERSON CTY - REND LAKE
MONUMENT ELEVATIONS FROM 6/30/88 TO 12/03/92
TRANSVERSE MONUMENT LINE OVER PANELS 3 AND 4

MON #	12/12/89 ELEV. FEET	11/14/90 ELEV. FEET	2/4/91 ELEV. FEET	5/9/91 ELEV. FEET	12/10/91 ELEV. FEET	4/15/92 ELEV. FEET	12/03/92 ELEV. FEET	MON #
0005	420.3548	420.3817	420.3898	420.3834	420.3964	420.3817	420.4269	0005
79	NA	419.3116	NA	NA	419.3030	419.2707	419.2929	79
80	419.0972	419.0993	NA	NA	419.0895	419.0429	NA	80
81	419.2744	419.2890	NA	NA	419.2574	419.2052	419.1933	81
82	NA	NA	NA	NA	NA	NA	NA	82
83	NA	NA	NA	NA	NA	NA	NA	83
84	NA	NA	NA	NA	NA	NA	NA	84
85	NA	NA	NA	NA	NA	NA	NA	85
** 86	425.8932	425.8839	NA	NA	425.8061	425.7108	425.6348	86
87	432.1378	432.1086	NA	NA	432.0343	431.9333	431.8566	87
88	433.9261	433.8796	NA	NA	NA	NA	NA	88
89	432.4962	432.4102	NA	NA	432.3346	432.2395	432.1804	89
90	430.2780	430.0239	NA	429.9449	429.9000	429.8144	429.7709	90
91	429.0953	428.8070	NA	NA	428.6723	428.5904	NA	91
92	428.2221	427.9000	NA	NA	427.7649	427.6869	NA	92
93	427.7918	427.5039	427.4631	NA	427.3574	427.2972	NA	93
CL Panel 4 94	427.4569	427.1689	NA	NA	427.0261	426.9673	426.9603	CL Panel 4 94
95	426.2145	425.9293	NA	NA	NA	425.7329	NA	95
96	425.4090	425.1396	NA	425.0984	NA	424.9383	NA	96
97	425.4731	425.2038	NA	NA	NA	424.9994	NA	97
** 98	427.1678	426.8922	NA	NA	NA	426.6932	NA	98
** 99	430.6705	430.3985	430.3579	NA	430.2404	430.1906	NA	99
100	431.1209	430.8501	NA	NA	430.6875	430.6365	NA	100
101	429.9551	429.6875	NA	NA	429.5187	429.4700	429.4811	101
102	429.1124	428.8418	NA	NA	NA	428.6217	428.6347	102
103	430.5537	430.2836	NA	NA	430.1116	430.0654	430.0800	103
104	431.9554	431.6894	NA	NA	NA	NA	NA	104
105	431.5768	431.3084	431.2573	NA	NA	431.0825	431.1032	105
106	432.0365	431.7752	431.7194	431.7388	NA	NA	NA	106
107	432.9217	432.6629	432.6094	NA	432.4836	432.4380	432.4496	107
108	433.4790	433.2179	433.1668	NA	NA	437.1589	NA	108
109	432.9562	432.6956	432.6517	NA	432.5218	432.4811	432.4863	109
110	432.4712	432.2174	432.1841	NA	432.0524	432.0208	NA	110
111	430.9688	430.7305	430.7183	430.5036	430.5542	430.5619	430.5353	111
112	NA	NA	NA	NA	NA	NA	NA	112
113	NA	NA	NA	NA	NA	NA	NA	113
114	NA	NA	NA	NA	NA	NA	NA	114
115	NA	NA	NA	NA	NA	NA	NA	115
CL Panel 3 116	428.6704	428.5067	428.4704	428.4127	428.3650	428.3326	428.3572	CL Panel 3 116
117	NA	NA	NA	NA	NA	NA	NA	117
118	NA	NA	NA	NA	NA	NA	NA	118
119	NA	NA	NA	NA	NA	NA	NA	119
120	NA	NA	NA	NA	NA	NA	NA	120
121	NA	NA	NA	NA	NA	NA	NA	121
122	431.9702	431.8177	431.7862	NA	NA	NA	NA	122
123	433.1610	433.0183	432.9650	NA	NA	NA	NA	123
124	433.5442	433.3964	433.3519	NA	NA	NA	NA	124
125	433.8085	433.6623	433.6224	NA	NA	NA	NA	125
126	433.9463	433.8080	433.7702	NA	NA	NA	NA	126
127	434.7494	434.5988	434.5727	NA	434.4688	434.4389	434.4636	127
128	434.1640	434.0217	433.9927	NA	NA	NA	NA	128
129	433.7453	433.6089	433.5850	NA	NA	NA	NA	129
130	433.8532	433.7380	433.7018	NA	NA	NA	NA	130
131	434.1508	434.0256	434.0045	NA	NA	NA	NA	131
132	433.8933	433.7898	433.7553	NA	NA	NA	NA	132
133	433.2868	433.1684	433.1489	NA	NA	NA	NA	133

APPENDIX D Closures on Controls

Surveys from 1988

Site: Panel 3

Date: 9/7/88

Instrument used to level: NA-2 WILD

Traverse from 0001 to 0003

Turning Point	FS	BS	(DIFF)	METERS	FEET	CORRECTED ELEV FEET
0001		1.73088		1.73088	5.67867	437.2
1	1.44456	1.5592	-0.12194	1.44456	4.73931	438.1394
2	2.6618	0.00376	2.56073	2.53986	8.33276	434.5459
3	0.6023	1.7869	-1.19191	3.04109	9.97721	432.9015
0003	1.80438	1.00487	-0.06779	3.05127	10.01059	432.8681
4	2.00467	2.10313	-0.10577	3.18376	10.44528	432.4334
5	1.12118	2.8928	-1.57893	2.19451	7.19973	435.6789
0001	2.23648			1.73088	5.67867	437.2
Closure error		-0.004983				
Distributed error		-0.00731				
After distribution		0.00000				

Site: Panel 3

Date: 9/9/88

Instrument used to level: NA-2 WILD

Traverse from 0001 to 0003

Turning Point	FS	BS	(DIFF)	METERS	FEET	CORRECTED ELEV FEET
0001		1.22149		1.22149	4.00746	437.2
1	2.16243	2.23325	-0.07074	2.16243	7.09450	434.1130
2	3.55734	1.88665	1.92077	3.48660	11.43884	429.7686
3	1.93988	2.96775	-1.02779	3.78991	12.43395	428.7735
0003		1.22622		2.51847	8.26258	432.9449
4	3.53128	3.33309	0.14827	4.35353	14.28304	426.9244
5	0.63957	2.08233	-1.45268	1.61009	5.28237	435.9251
6	1.66277	1.34351	0.41934	1.18061	3.87334	437.3341
0001	1.28431			1.22149	4.00746	437.2
Closure error		0.00049				
Distributed closure		0.00008				
After distribution		-0.00000				

Site: Panel 3

Date: 10/6/88

Instrument used to level: NA-2 WILD

Traverse from 0001 to 0003

Turning Point	FS	BS	(DIFF)	METERS	FEET	CORRECTED ELEV FEET
0001		0.5603		0.56030	1.83823	437.2
1	0.19698	1.81087	-1.61190	0.19698	0.64625	438.3920
2	3.82044	1.34335	2.47909	2.20855	7.24579	431.7924
3	1.16464	2.12057	-0.95394	2.03183	6.66603	432.3722
4	2.08785	1.3182	0.77164	2.00111	6.56523	432.4730
0003	1.1889			1.87380	6.14756	432.8907
5	0.98648	0.83257	0.15591	1.67138	5.48346	433.5548
6	3.20452	3.50585	-0.29934	4.04533	13.27190	425.7663
7	0.29216	2.49609	-2.20194	0.83363	2.73497	436.3033
8	1.94763	0.79619	1.15344	0.28716	0.94213	438.0961
0001	1.06733			0.56030	1.83823	437.2
Closure error		0.01596				
Distributed error		0.00200				
After distribution		0.00000				

Site: Panels 3 & 4
Date: 1/17/89; 3:15 pm
Instrument used to level: NA-2 WILD
Traverse from 0001 to 0005 to establish elevation.

Turning Point	FS	BS	(DIFF)	METERS	FEET	CORRECTED ELEV FEET
0001		0.65497		0.65497	2.14883	437.2
A	2.40368	0.55134	1.85229	2.40368	7.88599	431.4628
B	3.18410	1.06995	2.11410	5.03639	16.52339	422.8254
0005	1.82172			5.78811	18.98964	420.3592
C	1.19568	3.78575	-2.59012	5.16207	16.93573	422.4131
D	1.67061	2.10561	-0.43505	3.04689	9.99622	429.3526
E	1.19445	2.53838	-1.34398	2.13568	7.00673	432.3421
0001		1.05772		0.65497	2.14883	437.2
Closure error			-0.00024			
Distributed closure			-0.00005			
After distribution			0.00000			

Site: Panels 3 & 4
Date: 1/17/89; 4:15 pm
Instrument used to level: NA-2 WILD
Traverse from 0001 to 0005 to establish elevation.

Turning Point	FS	BS	(DIFF)	METERS	FEET	CORRECTED ELEV FEET
0001		1.05772		1.05772	3.47017	437.2
A	2.76697	0.52140	2.24666	2.76697	9.07788	431.5923
B	3.25640	1.11602	2.14147	5.50306	18.05444	422.6157
0005		1.79845		6.18658	20.29693	420.3732
C	1.16026	3.36474	-2.20339	5.54839	18.20316	422.4670
D	0.67615	3.10838	-2.43114	2.86089	9.38601	431.2842
0001		1.30412		1.05772	3.47017	437.2
Closure error			0.00436			
Distributed closure			0.00109			
After distribution			-0.00000			

Site: Panels 3 & 4
Date: 2/14/89
Instrument used to level: NA-2 WILD

Turning Point	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
0001	0.55755			0.55755	1.82921	437.2
1	2.24271	0.36822	1.87498	2.24271	7.35788	431.6713
2	2.66272	1.86035	0.80286	4.53770	14.88728	424.1419
3	2.43536	1.20385	1.23200	5.11319	16.77536	422.2538
0005	1.7822			5.69203	18.67441	420.3548
4	1.21677	3.8727	-2.65544	5.12660	16.81935	422.2099
5	2.86882	2.11063	0.75868	4.12321	13.52742	425.5018
6	0.6767	2.53452	-1.85733	2.68976	8.82458	430.2046
0001	0.40182			0.55755	1.82921	437.2000
Closure error				0.00292		
Distributed closure				0.00049		
After distribution				-0.00000		

Site: Panels 3 & 4

Date: 11/14/90

Instrument used to level: NA-2 WILD

Traverse from 0001 to 0005 to establish elevation.

Turning Point	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
0001	0.34384			0.34384	1.12807	437.2
A	3.90152	0.76752	3.13584	3.90152	12.80011	425.5280
B	1.79632	1.18696	0.61120	4.93216	16.18143	422.1466
0005	1.72305			5.47009	17.94627	420.3818
B	1.18815	1.75632	-0.56633	4.93519	16.19137	422.1367
C	0.59222	3.72715	-3.13309	3.77293	12.37823	425.9498
0001	0.29622			0.34384	1.12807	437.2

Closure error	0.00736
Distributed error	0.00184
After distibution	0.00000

Site: Panels 3 & 4
 Date: 2/4/91
 Instrument used to level: NA-2 WILD
 Traverse from 0001 to 0005 to establish elevation.

Turning Point	ROD READING			METERS	FEET	CORRECTED ELEV.
						FEET
0001	0.28161			0.28161	0.92391	437.2
A	3.36746	0.51248	2.85597	3.36746	11.04796	427.0759
B	2.08413	1.37660	0.70852	4.94009	16.20746	421.9164
0005	1.84093			5.40542	17.73409	420.3898
B	1.37498	1.94825	-0.57228	4.93946	16.20540	421.9185
C	0.34495	3.38294	-3.03699	3.33715	10.94854	427.1754
0001	0.32640			0.28161	0.92391	437.2

Closure error 0.00396
 Distributed error 0.00099
 After distribution 0.00000

Site: Panels 3 & 4
 Date: 5/9/91
 Instrument used to level: NA-2 WILD
 Traverse from 0001 to 0005 to establish elevation.

Turning Point	ROD READING					CORRECTED
				METERS	FEET	ELEV. FEET
=====						
0001	0.51057			0.51057	1.67508	437.2
A	2.37361	0.50391	1.86969	2.37361	7.78734	431.0877
B	2.62303	1.2354	1.38762	4.49272	14.73971	424.1354
C	1.99815	1.49538	0.50276	5.25546	17.24210	421.6330
0005	1.87627			5.63634	18.49169	420.3834
D	1.49538	1.97832	-0.48295	5.25545	17.24206	421.6330
E	1.14726	2.47342	-1.32617	4.42437	14.51548	424.3596
F	0.3411	2.22237	-1.88128	2.29204	7.51973	431.3553
0001	0.44091			0.51057	1.67508	437.2

Closure -0.00007
 Distributed error -0.00001
 After distribution -0.00000

Site: Panels 3 & 4
 Date: 12/10/91
 Instrument used to level: NA-2 WILD
 Traverse from 0001 to 0005 to establish elevation.

Turning Point	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
0001	0.33978			0.33978	1.11475	437.2
A	3.6844	0.5935	3.09079	3.68440	12.08778	426.2270
B	1.956	1.4595	0.49639	5.04679	16.55751	421.7572
0005	1.87441			5.46159	17.91838	420.3964
B	1.45947	1.91155	-0.45219	5.04665	16.55705	421.7577
C	0.55066	3.71524	-3.16469	3.68565	12.09188	426.2229
0001	0.36948			0.33978	1.11475	437.2

Closure -0.00044
 Distributed closure -0.00011
 After distribution 0.00000

Site: Panels 3 & 4
Date: 4/14/92; 1:30 pm
Instrument used to level: NA-2 WILD
Traverse from 0001 to 0005 to establish elevation.

Turning Point	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
0001	0.28101			0.28101	0.92194	437.2
A	3.32495	0.80148	2.7240975	3.32495	10.90850	427.2134
B	2.07382	1.38181	0.7128375	4.79792	15.74101	422.3809
0005	1.98598			5.40570	17.73500	420.3889
B	1.38181	2.04448	-0.8820425	4.79855	15.74307	422.3789
C	0.6041	3.37005	-2.7853225	3.35879	11.01951	427.1024
0001	0.29184			0.28101	0.92194	437.2
Closure error				0.00251		
Distributed closure				0.00063		
After distribution				0.00000		

Site: Panels 3 & 4
Date: 4/15/92; 8:00 pm
Instrument used to level: NA-2 WILD
Traverse from 0001 to 0005 to establish elevation.

Turning Point	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
0001	0.28199			0.28199	0.85954	437.2
A	3.21083	0.58572	2.82559	3.21083	10.53409	427.5254
B	2.43057	1.58438	0.86889	5.05618	16.58824	421.4713
0005	1.88545			5.38773	17.67605	420.3835
B	1.58438	2.34429	-0.77945	5.05664	16.58981	421.4897
C	0.49868	3.24183	-2.74247	3.21150	10.53630	427.5232
0001	0.29184			0.28199	0.85954	437.2
Closure				0.00191		
Distributed error				0.00048		
After distribution				-0.00000		

Site: Panels 3 & 4
Date: 4/15/92; 7:00 pm
Instrument used to level: NA-2 WILD
Traverse from 0001 to 0005 to establish elevation.

Turning Point	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
0001	0.32588			0.32588	1.08915	437.2
A	3.34662	0.59883	2.75002	3.34662	10.97959	427.2898
B	2.43392	1.82089	0.81328	5.18394	17.00747	421.2817
0005	1.88888			5.45218	17.88745	420.3817
B	1.82085	2.40831	-0.78783	5.18393	17.00744	421.2817
C	0.58982	3.35091	-2.78108	3.34547	10.97582	427.2933
0001	0.33129			0.32588	1.08915	437.2
Closure				0.00012		
Distributed error				0.00003		
After distribution				-0.00000		

Site: Panels 3 & 4
Date: 12/03/92; 11:45 am
Instrument used to level: NA-2 WILD
Traverse from 0001 to 0005 to establish elevation.

Turning Point	ROD READING			METERS	FEET	CORRECTED ELEV. FEET
0001	0.39173			0.39173	1.28519	437.2
A	3.17185	0.3801	2.79189	3.17185	10.40821	428.0790
B	2.10854	1.35818	0.75032	4.90023	16.07867	422.4085
0005	1.98222			5.50423	18.05828	420.4209
B	1.35812	2.11643	-0.76037	4.90013	16.07635	422.4088
C	0.52232	3.31918	-2.79892	3.30398	10.83983	427.8458
0001	0.40701			0.39173	1.28519	437.2
Closure				-0.00024		
Distributed error				-0.00008		
After distribution				-0.00000		

APPENDIX E Horizontal Strain Calculations

EFFERSON COUNTY

Julian Day	Date Time	6/30/88		7/7/88		9/8/88		9/13/88		9/14/88		9/15/88		9/22/88		9/27/88		10/5/88			
		Total	Station	11am	250	10am	251	8am	252	10am	253	7pm	257	1pm	258	--	259	10a	266	271	279
Temperature (F)			75	55	60	60	55	251	252	70	80	75	85	60	75	65					
Horizontal distance between monuments (ft)																					
111-110		34.823	34.859	34.874	34.911	34.911	34.874	34.874	35	35	35.208	35.244	35.27	35.305	35.315	35.325					
110-109		34.987	34.99	34.99	34.995	34.995	34.99	34.99	35	35	35.019	35.02	35.03	35.025	35.025	35.03					
109-108		34.558	34.558	34.59	34.595	34.595	34.59	34.59	34.59	34.59	34.6	35.371	34.605	34.595	34.6	34.6					
108-107		35.339	35.375	35.372	35.371	35.371	35.372	35.372	35.365	35.365	35.375	35.37	35.382	35.37	35.375	35.38					
107-106		34.803	34.84	34.84	34.841	34.841	34.84	34.84	34.84	34.84	34.841	34.835	34.85	34.84	34.845	34.84					
Temperature corrections to 70 degrees (F)																					
Coefficient of thermal expansion of steel=0.0000065/deg F																					
111-110			0.001	-0.003	-0.002	-0.002	-0.003	-0.003	0.000	0.000	0.002	0.001	0.003	-0.001	0.001	-0.001					
110-109			0.001	-0.003	-0.002	-0.002	-0.003	-0.003	0.000	0.000	0.002	0.001	0.003	-0.001	0.001	-0.001					
109-108			0.001	-0.003	-0.002	-0.002	-0.003	-0.003	0.000	0.000	0.002	0.001	0.003	-0.001	0.001	-0.001					
108-107			0.001	-0.003	-0.002	-0.002	-0.003	-0.003	0.000	0.000	0.002	0.001	0.003	-0.001	0.001	-0.001					
107-106			0.001	-0.003	-0.002	-0.002	-0.003	-0.003	0.000	0.000	0.002	0.001	0.003	-0.001	0.001	-0.001					
Corrected distance between monuments (ft)																					
111-110		34.823	34.858	34.877	34.913	34.913	34.877	34.877	35.000	35.000	35.206	35.243	35.267	35.306	35.314	35.326					
110-109		34.987	34.989	34.993	34.997	34.997	34.993	34.993	35.000	35.000	35.017	35.019	35.027	35.026	35.024	35.031					
109-108		34.558	34.564	34.593	34.597	34.597	34.593	34.593	34.590	34.590	34.588	34.584	34.602	34.596	34.599	34.601					
108-107		35.339	35.374	35.375	35.373	35.373	35.375	35.375	35.365	35.365	35.379	35.369	35.379	35.371	35.374	35.381					
107-106		34.803	34.839	34.843	34.843	34.843	34.843	34.843	34.840	34.840	34.839	34.834	34.847	34.841	34.844	34.841					
STRANS (-) TENSION; (+) COMPRESSION																					
111-110			-0.001	-0.002	-0.003	-0.003	-0.002	-0.002	-0.005	-0.005	-0.011	-0.012	-0.013	-0.014	-0.014	-0.014					
110-109			-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001					
109-108			-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001					
108-107			-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001					
107-106			-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001					

JEFFERSON COUNTY
HORIZONTAL MEASUREMENTS BETWEEN MONUMENTS 76 AND 78
(Centerline panel 4)

Date Time Julian Day Temperature (F)	1/18/89 8am	1/23/89 5pm	2/1/89 9am	2/3/89 1pm	2/7/89 5pm	2/8/89 4pm	2/10/89 8am	2/10/89 4pm	2/13/89 4pm	2/14/89 2pm	2/23/89 2pm	4/12/89 10am
	18 40	23 47	32 52	34 20	38 25	39 22	41 30	41 33	44 45	45 40	54 20	102 70
Horizontal distance between monuments (ft)												
M76-P350	20.42	20.423	20.425	20.43	20.43	20.43	20.475	20.48	20.455	20.46	20.495	20.505
P350-I500	15.29	15.29	15.29	15.29	15.29	15.29	15.35	15.35	15.35	15.29	15.301	15.3
I500-T401	15.63	15.625	15.625	15.63	15.625	15.635	15.625	15.63	15.65	15.70	15.755	15.78
T401-M77	15.045	15.05	15.05	15.06	15.065	15.085	15.23	15.26	15.27	15.12	15.1	15.095
M77-M78	14.755	14.75	14.75	14.755	14.76	14.76	14.79	14.79	14.741	14.68	14.7	14.695
Temperature correction to 70 degrees F												
Coefficient of thermal expansion of steel=0.0000065/deg F												
M76-P350	-0.004	-0.003	-0.002	-0.007	-0.006	-0.006	-0.005	-0.005	-0.003	-0.004	-0.007	0.000
P350-I500	-0.003	-0.002	-0.002	-0.005	-0.004	-0.005	-0.004	-0.004	-0.002	-0.003	-0.005	0.000
I500-T401	-0.003	-0.002	-0.002	-0.005	-0.005	-0.005	-0.004	-0.004	-0.003	-0.003	-0.005	0.000
T401-M77	-0.003	-0.002	-0.002	-0.005	-0.004	-0.005	-0.004	-0.004	-0.002	-0.003	-0.005	0.000
M77-M78	-0.003	-0.002	-0.002	-0.005	-0.004	-0.005	-0.004	-0.004	-0.002	-0.003	-0.005	0.000
Corrected distance between monuments (ft)												
M76-P350	20.424	20.428	20.427	20.437	20.436	20.436	20.480	20.485	20.458	20.464	20.502	20.505
P350-I500	15.293	15.292	15.292	15.295	15.294	15.295	15.354	15.354	15.297	15.233	15.306	15.300
I500-T401	15.633	15.627	15.627	15.635	15.630	15.640	16.029	16.077	15.853	15.793	15.790	15.780
T401-M77	15.048	15.052	15.052	15.065	15.069	15.070	15.234	15.264	15.272	15.123	15.105	15.095
M77-M78	14.758	14.752	14.752	14.760	14.764	14.765	14.794	14.794	14.743	14.683	14.705	14.695
STRAINS (-) TENSION; (+) COMPRESSION												
M76-P350	-0.000	-0.000	-0.000	-0.001	-0.001	-0.001	-0.003	-0.003	-0.002	-0.002	-0.004	-0.004
P350-I500	0.000	0.000	0.000	-0.000	-0.000	-0.000	-0.004	-0.004	-0.000	0.004	-0.001	-0.000
I500-T401	0.000	0.000	0.000	-0.000	0.000	0.000	-0.025	-0.028	-0.014	-0.010	-0.010	-0.009
T401-M77	-0.000	-0.000	-0.000	-0.001	-0.001	-0.001	-0.012	-0.014	-0.015	-0.005	-0.004	-0.003
M77-M78	0.000	0.000	0.000	-0.000	-0.000	-0.000	-0.002	-0.002	0.001	0.005	0.004	0.004

JEFFERSON COUNTY
HORIZONTAL MEASUREMENTS BETWEEN MONUMENTS 134 AND 137
(Centerline panel 3)

82

Date	8/31/88	8/31/88	9/1/88	9/2/88	9/2/88	9/4/88	9/6/88	9/7/88	9/8/88	9/9/88	9/13/88	9/14/88	9/15/88
Time	12pm	5pm	9am	1pm	3pm	3pm	11am	8pm	8am	8am	am	1pm	am
Julian Day	244	244	245	246	246	246	248	251	252	253	257	258	259
Temperature (F)	80	80	75	86	75	75	70	55	60	70	80	75	85

Horizontal distance between monuments (ft)

134-135	35.175	35.188	35.195	35.170	35.149	35.082	35.075	35.035	34.98	35	35.061	35.066	35.079
135-136	34.950	34.945	34.950	34.840	34.809	34.700	34.675	34.611	34.65	34.695	34.755	34.755	34.771
136-137	38.210	38.191	38.175	38.031	38.015	37.900	37.88	38.001	38.045	38.06	38.08	38.08	38.09

Temperature corrections to 70 degrees (F)

Coefficient of thermal expansion of steel=0.0000065/deg F

134-135	0.002	0.002	0.001	0.004	0.001	0.001	0.000	-0.003	-0.002	0.000	0.002	0.001	0.003
135-136	0.002	0.002	0.001	0.004	0.001	0.001	0.000	-0.003	-0.002	0.000	0.002	0.001	0.003
136-137	0.002	0.002	0.001	0.004	0.001	0.001	0.000	-0.004	-0.002	0.000	0.002	0.001	0.004

Corrected distance between monuments (ft)

134-135	35.173	35.186	35.194	35.166	35.148	35.081	35.075	35.038	34.982	35.000	35.059	35.065	35.076
135-136	34.948	34.943	34.949	34.836	34.808	34.699	34.675	34.614	34.652	34.695	34.753	34.754	34.768
136-137	38.208	38.189	38.174	38.027	38.014	37.899	37.880	38.005	38.047	38.060	38.078	38.079	38.086

STRAINS (-) TENSION; (+) COMPRESSION

134-135	-0.000	-0.001	-0.001	0.000	0.001	0.003	0.003	0.004	0.005	0.005	0.003	0.003	0.003
135-136	0.000	-0.000	-0.000	0.003	0.004	0.007	0.008	0.010	0.008	0.007	0.006	0.006	0.005
136-137	0.000	0.001	0.001	0.005	0.005	0.008	0.009	0.005	0.004	0.004	0.003	0.003	0.003

JEFFERSON COUNTY
HORIZONTAL MEASUREMENTS BETWEEN
(TRANSVERSE PANEL 4)

MONUMENTS

Date Time	2/3/89 2pm	2/8/89 3pm	2/9/89 3:30pm	2/13/89 5pm	2/14/89 5pm	2/23/89 2pm	4/11/89** 4:30pm
Julian Day	34	39	40	44	45	54	101
Temperature (F)	20	22	27	40	40	30	62

Horizontal distance between monuments (ft)							
30+25-30+50	22.47	22.47	22.47	22.47	22.42	22.32	22.4
30+50-30+75	26.01	26.01	26.005	25.98	25.89	25.87	25.765
30+75-31+00	25.43	25.43	25.43	25.41	25.36	25.31	25.29
31+00-31+25	24.66	24.66	24.658	24.63	24.585	24.585	24.58
31+25-31+50	24.51	24.51	24.515	24.49	24.44	24.46	24.45
31+50-31+75	25.26	25.26	25.25	25.24	25.215	25.185	25.18
31+75-32+00	24.83	24.83	24.825	24.805	24.8	24.73	
32+00-32+25	24.84	24.83	24.84	24.83	24.89	24.705	
32+25-32+50	25.46	25.47	25.46	25.465	25.52	25.32	
32+50-32+75	24.06	24.06	24.065	24.06	24.11	23.66	
32+75-33+00	25.14	25.13	25.14	25.14	25.165	24.49	
33+00-33+25	24.75	24.75	24.75	24.75	24.77	25.49	
33+25-33+50	24.56	24.56	24.56	24.56	24.57	25.25	
33+50-33+75	24.66	24.675	24.66	24.66	24.69	24.735	
33+75-34+00	25.11	25.1	25.1	25.11	25.1	25.12	
34+00-34+25	25.35	25.35	25.345	25.34	25.35	25.355	
34+25-34+50	24.59	24.58	24.585	24.58	24.585	24.59	
34+50-34+75	24.83	24.825	24.825	24.81	24.82	24.84	
34+75-35+00	25.25	25.24	25.24	25.24	25.25	25.245	

** Values on 4/11/89 are suspect, there was adjacent road construction which disturbed and/or destroyed the monuments.

Temperature corrections to 70 degrees (F)

Coefficient of thermal expansion of steel=0.0000065/deg F

30+25-30+50	-0.007	-0.007	-0.008	-0.004	-0.004	-0.006	-0.001
30+50-30+75	-0.006	-0.006	-0.007	-0.005	-0.005	-0.007	-0.001
30+75-31+00	-0.006	-0.006	-0.007	-0.005	-0.005	-0.007	-0.001
31+00-31+25	-0.006	-0.006	-0.007	-0.005	-0.005	-0.006	-0.001
31+25-31+50	-0.006	-0.006	-0.007	-0.005	-0.005	-0.006	-0.001
31+50-31+75	-0.006	-0.006	-0.007	-0.005	-0.005	-0.006	-0.001
31+75-32+00	-0.006	-0.006	-0.007	-0.005	-0.005	-0.006	
32+00-32+25	-0.006	-0.006	-0.007	-0.005	-0.005	-0.006	
32+25-32+50	-0.006	-0.006	-0.007	-0.005	-0.005	-0.007	
32+50-32+75	-0.007	-0.007	-0.007	-0.005	-0.005	-0.006	
32+75-33+00	-0.006	-0.006	-0.007	-0.005	-0.005	-0.006	
33+00-33+25	-0.006	-0.006	-0.007	-0.005	-0.005	-0.007	
33+25-33+50	-0.006	-0.006	-0.007	-0.005	-0.005	-0.007	
33+50-33+75	-0.006	-0.006	-0.007	-0.005	-0.005	-0.006	
33+75-34+00	-0.006	-0.006	-0.007	-0.005	-0.005	-0.006	
34+00-34+25	-0.006	-0.006	-0.007	-0.005	-0.005	-0.007	
34+25-34+50	-0.006	-0.006	-0.007	-0.005	-0.005	-0.006	
34+50-34+75	-0.006	-0.006	-0.007	-0.005	-0.005	-0.006	
34+75-35+00	-0.006	-0.006	-0.007	-0.005	-0.005	-0.007	

Corrected distance between monuments (ft)



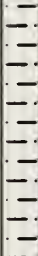

30+25-30+50	22.477		22.476	22.474	22.424	22.326	22.401
30+50-30+75	26.018	26.018	26.012	25.985	25.895	25.877	25.766
30+75-31+00	25.438	25.438	25.437	25.415	25.365	25.317	25.291
31+00-31+25	24.668	24.668	24.665	24.635	24.590	24.591	24.581
31+25-31+50	24.516	24.516	24.522	24.495	24.445	24.466	24.451
31+50-31+75	25.268	25.268	25.257	25.245	25.220	25.191	25.181
31+75-32+00	24.838	24.838	24.832	24.810	24.805	24.736	
32+00-32+25	24.848	24.838	24.847	24.835	24.895	24.711	
32+25-32+50	25.468	25.478	25.467	25.470	25.525	25.327	
32+50-32+75	24.067	24.067	24.072	24.065	24.115	23.866	
32+75-33+00	25.148	25.138	25.147	25.145	25.170	24.496	
33+00-33+25	24.756	24.756	24.757	24.755	24.775	25.497	
33+25-33+50	24.568	24.568	24.567	24.585	24.575	25.257	
33+50-33+75	24.668	24.683	24.667	24.685	24.695	24.741	
33+75-34+00	25.118	25.108	25.107	25.115	25.105	25.126	
34+00-34+25	25.358	25.358	25.352	25.345	25.355	25.362	
34+25-34+50	24.598	24.588	24.592	24.585	24.590	24.596	
34+50-34+75	24.838	24.833	24.832	24.815	24.825	24.846	
34+75-35+00	25.258	25.248	25.247	25.245	25.255	25.252	

STRAINS (-) TENSION; (+) COMPRESSION

30+25-30+50	0.000	0.000	0.000	0.002	0.007	0.003	
30+50-30+75	0.000	0.000	0.001	0.005	0.005	0.010	
30+75-31+00	0.000	0.000	0.001	0.003	0.005	0.006	
31+00-31+25	0.000	0.000	0.001	0.003	0.003	0.004	
31+25-31+50	0.000	-0.000	0.001	0.003	0.002	0.003	
31+50-31+75	0.000	0.000	0.001	0.002	0.003	0.003	
31+75-32+00	0.000	0.000	0.001	0.001	0.004		
32+00-32+25	0.000	0.000	0.001	-0.002	0.005		
32+25-32+50	-0.000	0.000	-0.000	-0.002	0.006		
32+50-32+75	0.000	-0.000	0.000	-0.002	0.008		
32+75-33+00	0.000	0.000	0.000	-0.001	0.026		
33+00-33+25	0.000	0.000	0.000	-0.001	-0.030		
33+25-33+50	0.000	0.000	0.000	-0.000	-0.028		
33+50-33+75	0.000	0.000	0.000	-0.000	-0.002		
33+75-34+00	0.000	0.000	0.000	0.001	-0.000		
34+00-34+25	0.000	0.000	0.001	0.000	-0.000		
34+25-34+50	0.000	0.000	0.001	0.000	0.000		
34+50-34+75	0.000	0.000	0.001	0.001	-0.000		
34+75-35+00	0.000	0.000	0.001	0.000	0.000		

APPENDIX F Presubsidence Geotechnical Core Log

GEOLOGICAL BORING LOG: T401 (TDR); t Panel 4;Pre-subsidence			Page 1 of 18		
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois			SURF ELEV: 438.8 FT		
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County			TOTAL DEPTH: 698.6 FT		
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris		METHOD: NX-wireline core, 10" tilt		DATE DRILLED: 8/22-26/88	

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RGD			Fractures per foot				RM Tests	Log	Joints	
				25	50	75	25	50	75	1	2	3	4			Description	
0	GLACIAL DEPOSITS: loess over till		Hollow- stem auger														
5																	
10																	
15																	
20	SHALE: med gray, silty, weathered		Run 1 10.2 ft.														
25																	
30																	
35	SILTSTONE with clay laminae; siltstone lenses common		Run 2 10 ft.														
40																	
	SHALE with siltstone laminae; grades to:		Run 3 9.4 ft.														

Illinois State Geological Survey
 Illinois Mine Subsidence Research Program
 615 East Peabody Drive, Champaign, IL 61820
 (217) 333-4747

—37.5: med-angled,
 unfilled

GEOLOGICAL BORING LOG: T401 (TDR); t Panel 4;Pre-subsidence		Page 2 of 18
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois		SURF ELEV: 438.8 FT
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County		TOTAL DEPTH: 698.6 FT
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris	METHOD: NX-wireline core, 10' tilt	DATE DRILLED: 8/22-26/88

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Log	Joints
				25	50	75	25	50	75	1	2	3	4			Description
40																
45																
	SHALE: calc, with marine fossils		Run 4 9.4 ft.													
	SHALE: black, fissile below 47.0'															49.3: high-angled, unfilled
	SHALE: dk gray, carb, with many land plant compressions															
	SHALE: med gray, sl silty, with scattered plant fossils; more fossiliferous and siltier below 64.7'		Run 5 10.6 ft.													
55																
60																
65																
	SHALE: gray, interbedded with gray siltstone, micaceous partings		Run 6 10 ft.													70.2: med-angled, unfilled
70	SANDSTONE: fairly uniform, some thin clay laminae down to 72.6' and some plant debris fossils 76.5 to 78'															
75			Run 7 9.9 ft.													77.0: high-angled, unfilled
80																
<div>Illinois State Geological Survey Illinois Mine Subsidence Research Program 615 East Peabody Drive, Champaign, IL 61820 (217) 333-4747</div>																

66

GEOLOGICAL BORING LOG: T401 (TDR); t Panel 4;Pre-subsidence		Page 3 of 18
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois		SURF ELEV: 438.8 FT
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County		TOTAL DEPTH: 698.6 FT
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris	METHOD: NX-wireline core, 10' tilt	DATE DRILLED: 8/22-26/88

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RGD			Fractures per foot				RM Tests	Joints	
				25	50	75	25	50	75	1	2	3	4		Log	Description
80																
85	SHALE: silty, gray, non-calc; some thin sandst layers, fewer downward		Run 8 10 ft.													
90																
95			Run 9 10.2 ft.													
100	SILTSTONE with thin sandstone interbeds															
105	SANDSTONE: gray, some shale lamin at top; generally med grained, except for thin silty shale interbeds		Run 10 9.9 ft.													
110																
115			Run 11 10.1 ft.													
120																

90.8: high-angled,
unfilled

GEOLOGICAL BORING LOG: T401 (TDR); t Panel 4;Pre-subsidence		Page 4 of 18
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois		SURF ELEV: 438.8 FT
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County		TOTAL DEPTH: 698.6 FT
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris	METHOD: NX-wireline core, 10' tilt	DATE DRILLED: 8/22-26/88

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Log	Joints	
				25	50	75	25	50	75	1	2	3	4			Description	
120																	
125																	
130			Run 12 9.9 ft.														
135	SANDSTONE: med to coarse-grained, with a few silty shale laminae																
140																	
145	SANDSTONE: med to coarse-grained, sl calc 140.5 to 142'		Run 13 10.2 ft.														
150																	
155	SANDSTONE: as above, with a few shale interbeds, some cross-bedding		Run 14 10.2 ft.														
160																	
	SANDSTONE with clay interbeds and pebble lag at base; angular contact to: SHALE: med gray, not silty at top		Run 15 9.2 ft.														

GEOLOGICAL BORING LOG: T401 (TDR); t Panel 4;Pre-subsidence		Page 5 of 18
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois		SURF ELEV: 438.8 FT
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County		TOTAL DEPTH: 698.6 FT
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris	METHOD: NX-wireline core, 10' tilt	DATE DRILLED: 8/22-26/88

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Log	Joints	
				25	50	75	25	50	75	1	2	3	4			Description	
160																	
165			Run 16 10.8 ft.														
170																	
175																	
180	SILTSTONE: gray, interbedded lt gray siltstone, shale lam, micaceous partings		Run 17 9.6 ft.														
185																	
190			Run 18 10 ft.														
195																	
200	SILTSTONE: lt gray, fissile, argillaceous, shale lam		Run 19 10 ft.														

193.0: low-angled,
unfilled

GEOLOGICAL BORING LOG: T401 (TDR); t Panel 4;Pre-subsidence			Page 6 of 18		
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois			SURF ELEV: 438.8 FT		
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County			TOTAL DEPTH: 698.6 FT		
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris		METHOD: NX-wireline core, 10' tilt	DATE DRILLED: 8/22-26/88		

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Log	Joints	
				25	50	75	25	50	75	1	2	3	4			Description	
200																	
205			Run 20 9.6 ft.														206.0: low-angled, unfilled
210																	
215	SILTSTONE: dk gray, fissile, argillaceous		Run 21 10.4 ft.														
220	SHALE: med gray																
225			Run 22 9.9 ft.														225.0: low-angled, unfilled
230	LIMESTONE: gray, argillaceous, fossiliferous																
	LIMESTONE: lt cream to tan, fossiliferous (Carthage Ls.)																
235	SHALE: black, fissile below 234.5', with phosphate bands		Run 23 10.1 ft.														236.5: low-angled, unfilled
	CLAYSTONE: med gray, slickensided, mottled, not fossiliferous																238.0: low-angled, unfilled
240																	239.0: med-angled, unfilled
																	239.9: low-angled, unfilled

Illinois State Geological Survey



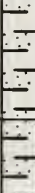
Illinois Mine Subsidence Research Program

615 East Peabody Drive, Champaign, IL 61820



(217) 333-4747

70

GEOLOGICAL BORING LOG: T401 (TDR); t Panel 4;Pre-subsidence		Page 7 of 18
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois		SURF ELEV: 438.8 FT
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County		TOTAL DEPTH: 698.6 FT
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris	METHOD: NX-wireline core, 10° tilt	DATE DRILLED: 8/22-26/88

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Log	Joints	
				25	50	75	25	50	75	1	2	3	4			Description	
240	SHALE: med gray, sl mottled at top; only sl silty at top, gradually becomes interlaminated with siltstone below 248'; silty shale below 255', grades to:																
245																	
250			Run 24 10.6 ft.														
255																	
260	SHALE: med gray, with coal stringers at base		Run 25 9.7 ft.														
	COAL: nbb																
	CLAYSTONE: gray to dk gray, very carb, fossiliferous																
265	SHALE: gray, silty, sl fossiliferous																
270	SILTSTONE: gray to dk gray, some silt lamin		Run 26 10 ft.														
275	SILTSTONE: gray to dk gray, micaceous lamin																
280	SANDSTONE: gray to green, very-fine grained, micaceous lamin, shale partings		Run 27 10.1 ft.														

259.3: high-angled,
unfilled

Illinois State Geological Survey

Illinois Mine Subsidence Research Program

615 East Peabody Drive, Champaign, IL 61820

(217) 333-4747

71

259.3: high-angled, unfilled

PROJECT: IMSRP Longwall Site in Jefferson County, Illinois

SURF ELEV: 438.8 FT

LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County

TOTAL DEPTH: 698.6 FT

LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris

METHOD: NX-wireline core, 10° tilt

DATE DRILLED: 8/22-26/88

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Log	Joints	
				25	50	75	25	50	75	1	2	3	4			Description	
280																	
285														☒			
290	SANDSTONE: lt gray, very-fine grained, dk shaley lamin		Run 28 9.6 ft.														
295	COAL: nbb in top 0.52', dull-banded at base SHALE: carbonaceous, plant fossils in top 0.14'													☒		294.0-294.6: 4, low-angled, sks, unfilled	
300	CLAYSTONE: grayish green, fossiliferous, brown calcite nodules		Run 29 10.7 ft.													298.3-299.2: 3, med-angled, unfilled	
305																	
310	SHALE: black, fissile SHALE: gray to dk gray, sl fissile		Run 30 9.6 ft.													306.6: med-angled, unfilled 309.1-309.2: 2, med-angled, planar, sks,	
315														☒			
320	MUDSTONE: lt gray, some limey or calcitic nodules at 322.0		Run 31 9.7 ft.													319.5: bedding separation, clay-filled	

Illinois State Geological Survey

Illinois Mine Subsidence Research Program

615 East Peabody Drive, Champaign, IL 61820

(217) 333-4747

GEOLOGICAL BORING LOG: T401 (TDR); t Panel 4;Pre-subsidence		Page 9 of 18
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois		SURF ELEV: 438.8 FT
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County		TOTAL DEPTH: 698.6 FT
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris	METHOD: NX-wireline core, 10° tilt	DATE DRILLED: 8/22-26/88

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Log	Joints
				25	50	75	25	50	75	1	2	3	4			Description
320																320.2-325.8: 17, mostly low- and med-angled, some high-angled, most unfilled, a few partly filled, no sks, most are rough and uneven, a few are smooth
325	CLAYSTONE: lt gray		Run 32 10.5 ft.													
	SILTSTONE: gray															
330	SANDSTONE: lt gray, massive, fine to med grained, Interbedded with shale, brown clay partings															
335																
	SANDSTONE: lt gray, very-fine grained, lam, sl argillaceous, fissile		Run 33 10.8 ft.													
340																
345																
	SILTSTONE: lt gray, argillaceous, interlaminated with shale, fissile		Run 34 8.5 ft.													
350																
355																
			Run 35 10.2 ft.													
360																
Illinois State Geological Survey Illinois Mine Subsidence Research Program 615 East Peabody Drive, Champaign, IL 61820 (217) 333-4747																

GEOLOGICAL BORING LOG: T401 (TDR); t Panel 4;Pre-subsidence			Page 10 of 18		
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois			SURF ELEV: 438.8 FT		
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County			TOTAL DEPTH: 698.6 FT		
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris		METHOD: NX-wireline core, 10' tilt		DATE DRILLED: 8/22-26/88	

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Log	Joints	
				25	50	75	25	50	75	1	2	3	4			Description	
360																	
365																	
370	SHALE: lt gray, silty, some silt lam		Run 36 10 ft.														
375	SILTSTONE: gray, argillaceous, interlaminated with shale, fissile																
380			Run 37 8.7 ft.														
385																	
390	SILTSTONE: gray, calcareous; well-indurated, impure limestone where sampled		Run 38 11.3 ft.														
395																	
400	SHALE: med gray, with siltstone lenses		Run 39 10 ft.														
<div> <div>Illinois State Geological Survey</div> <div>Illinois Mine Subsidence Research Program</div> <div>615 East Peabody Drive, Champaign, IL 61820</div> <div>(217) 333-4747</div> </div>																	

GEOLOGICAL BORING LOG: T401 (TDR); t Panel 4;Pre-subsidence			Page 11 of 18		
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois			SURF ELEV: 438.8 FT		
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County			TOTAL DEPTH: 698.6 FT		
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris		METHOD: NX-wireline core, 10° tilt	DATE DRILLED: 8/22-26/88		

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Joints	
				25	50	75	25	50	75	1	2	3	4		Log	Description
400																
405																
410			Run 40 barrel problem 1.1 ft.													
415	SHALE: black, fissile, bioturb at top, with marine fossils		Run 41 8.5 ft.													
420	COAL: nbb, gradational contacts		Run 42 10.2 ft.													
425	CLAYSTONE: gray-green, mottled, with plant fossils and calc nodules															
430	SHALE: light to med gray, with silty partings and nodules		Run 43 9.0 ft.													
435																
440	SHALE: gray, very thin white siltstone lamin		Run 44 10.2 ft.													

GEOLOGICAL BORING LOG: T 401 (TDR); t Panel 4;Pre-subsidence		Page 12 of 18
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois		SURF ELEV: 438.8 FT
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County		TOTAL DEPTH: 698.6 FT
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris	METHOD: NX-wireline core, 10' tilt	DATE DRILLED: 8/22-26/88

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Log	Joints
				25	50	75	25	50	75	1	2	3	4			Description
440	SILTSTONE: lt gray, some white lamin															
445	Run 45 10.6 ft.															
450																
455																
460																
465																
470																
475																
480																

447.1-447.9: 4, low-
and med-angled, sks,
unfilled

476.8: med-angled,
wavy, unfilled

Illinois State Geological Survey

Illinois Mine Subsidence Research Program

615 East Peabody Drive, Champaign, IL 61820

(217) 333-4747

76

GEOLOGICAL BORING LOG: T401 (TDR); t Panel 4;Pre-subsidence		Page 13 of 18
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois		SURF ELEV: 438.8 FT
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County		TOTAL DEPTH: 698.6 FT
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris	METHOD: NX-wireline core, 10' tilt	DATE DRILLED: 8/22-26/88

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Joints	
				25	50	75	25	50	75	1	2	3	4		Log	Description
480	SILTSTONE: dk gray, sl fissile, argillaceous, some lt gray siltst laminations, grades to faintly bedded shale below 517'															
485			Run 49 10.6 ft.													
490																
495			Run 50 10.9 ft.													
500																
505			Run 51 10 ft.													
510																
515			Run 52 9.0 ft.													
520																

PROJECT: IMSRP Longwall Site in Jefferson County, Illinois

SURF ELEV: 438.8 FT

LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County

TOTAL DEPTH: 698.6 FT

LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris

METHOD: NX-wireline core, 10' tilt

DATE DRILLED: 8/22-26/88

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Log	Joints	
				25	50	75	25	50	75	1	2	3	4			Description	
520																	
525	SHALE: gray, silty, fossil at bottom		Run 53 10 ft.														
530																	
535			Run 54 10.1 ft.														
540	SHALE: dk gray to black, silty, pyritic																
545	SHALE: black		Run 55 9.8 ft.														544.7: low-angled, sks, unfilled
550	SHALE: gray, silty, lt gray silt lamin																546.0: lithologic separation
555	SHALE: gray, silty, lamin																547.0-547.4: 4, med- and low-angled, sks, unfilled
560	SHALE: gray, silty, lt gray siltst lamin, some fossils and pyrite		Run 56 10.1 ft.														547.5: lithologic separation

Illinois State Geological Survey

Illinois Mine Subsidence Research Program

615 East Peabody Drive, Champaign, IL 61820

(217) 333-4747

GEOLOGICAL BORING LOG: T401 (TDR); t Panel 4;Pre-subsidence		Page 15 of 18
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois		SURF ELEV: 438.8 FT
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County		TOTAL DEPTH: 698.6 FT
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris	METHOD: NX-wireline core, 10' tilt	DATE DRILLED: 8/22-26/88

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Log	Joints	
				25	50	75	25	50	75	1	2	3	4			Description	
560	SHALE: gray, silty, lt gray and brown silt lamin																
565	SILTSTONE: gray, very thin white and lt gray lamin		Run 57 10.1 ft.														
	SILTSTONE: gray, with fine-grained sandstone interbeds																
570																	
575																	
580	SHALE: black, non-fissile, marine fossils, very carb at 580', less carb in bottom 1.5'		Run 58 10.1 ft.														
585	SANDSTONE AND SILTSTONE interlaminated, lt gray, cross-bedded in part, some ripples, siderite lumps		Run 59 9.9 ft.														
	SANDSTONE: fine-grained, unconformably overlies:																
590	SHALE: gray, limey at top, grades to green-gray claystone below 587.3'																587.0-589.3: 15, low- to med-angled, sks, unfilled
	LIMESTONE: nodular, argil at top, sl fossiliferous [Piasa Ls.]																590.3: low-angled, wavy, smooth
595	SHALE: black, very carb below 595', pyritic		Run 60 10.1 ft.														591.8: low-angled, wavy, smooth
600	COAL: nbb, calcite on cleat, bone parting over pyritic zone near base [Danville Coal]																593.0-593.4: 6, low- to med-angled, sks, unfilled

GEOLOGICAL BORING LOG: T 401 (TDR); t Panel 4; Pre-subsidence			Page 16 of 18		
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois			SURF ELEV: 438.8 FT		
LOCATION: 760'NL, 90'WL, Sec. 20, T45R2E, Jefferson County			TOTAL DEPTH: 698.6 FT		
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris		METHOD: NX-wireline core, 10' tilt		DATE DRILLED: 8/22-26/88	

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Log	Joins
				25	50	75	25	50	75	1	2	3	4			Description
600	CLAYSTONE: carb at top, slickensided															600.3-601.4: 13, low- to med-angled, sks, unfilled
	SHALE: gray-green, calc nodules at base															
605	LIMESTONE: nodular, med gray, grades to:															602.5-609.0: 30, low- to med-angled, sks, unfilled
610	LIMESTONE: cream-colored, less argil than above, sideritic at base (Bankston Fork Ls.)															
615			Run 62 9.8 ft.													612.9: med-angled, planar, rough
																613.6: med-angled, planar, rough
																616.5: med-angled, planar, rough, clay-filled
620	SILTSTONE: grayish green, very finely lamin, grades to:															
	SANDSTONE: silty at top, fine-to-med grained, some dipping beds															
625																
	SANDSTONE: fine-grained, with clay clasts, grades to:															
630	SILTSTONE with clay interbeds, carb toward base		Run 63 9.7 ft.													
635	SILTSTONE: calcareous, well-indurated impure limestone where sampled		Run 64 10.6 ft.													
640	SHALE: silty, interbedded with siltstone															

Illinois State Geological Survey
Illinois Mine Subsidence Research Program
615 East Peabody Drive, Champaign, IL 61820
(217) 333-4747

GEOLOGICAL BORING LOG: T401 (TDR); t Panel 4;Pre-subsidence		Page 17 of 18
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois		SURF ELEV: 438.8 FT
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County		TOTAL DEPTH: 698.6 FT
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris	METHOD: NX-wireline core, 10" tilt	DATE DRILLED: 8/22-26/88

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RGD			Fractures per foot				RM Tests	Log	Joints	
				25	50	75	25	50	75	1	2	3	4			Description	
640	SANDSTONE: lt gray, interbedded with siltstone at top, fewer interbeds downward, grades to:																
645			Run 65 10.5 ft.														
650																	
655	SILTSTONE: med gray, massive, some silty shale at top		Run 66 3.2 ft.														
660			Run 67 10.4 ft.														
665	SILTSTONE: gray, thinly laminated																
670			Run 68 15.4 ft.														
675																	
680																	
Illinois State Geological Survey Illinois Mine Subsidence Research Program 615 East Peabody Drive, Champaign, IL 61820 (217) 333-4747																	

GEOLOGICAL BORING LOG: T401 (TDR); t Panel 4;Pre-subsidence		Page 18 of 18
PROJECT: IMSRP Longwall Site in Jefferson County, Illinois		SURF ELEV: 438.8 FT
LOCATION: 760'NL, 90'WL, Sec. 20, T4S R2E, Jefferson County		TOTAL DEPTH: 698.6 FT
LOGGED BY: D. Brutcher, B. Mehnert, P. DeMaris	METHOD: NX-wireline core, 10' tilt	DATE DRILLED: 8/22-26/88

Depth (Feet)	Description	Lithology	Drilling Data	Core Recov (%)			RQD			Fractures per foot				RM Tests	Log	Joints	
				25	50	75	25	50	75	1	2	3	4			Description	
680																	
685			Run 69 13.7 ft.														
690																	
695																	
700			TD=698.6 ft.														
705																	
710																	
715																	
720																	
<div> <div>Illinois State Geological Survey</div> <div>Illinois Mine Subsidence Research Program</div> <div>615 East Peabody Drive, Champaign, IL 61820</div> <div>(217) 333-4747</div> </div>																	

APPENDIX G Presubsidence Geophysical Logs

Computed Composite Elastic Moduli Data
 by BPB Instruments, Inc.
 Jefferson Cty— Rend Lake Site— Pre—Subsidence (8/88)

Depth (ft)	Unit Weight (g/cc)	Compressive Wave Velocity (ft/s)	Shear Wave Velocity (ft/s)	Poisson's Ratio	Young's Modulus (psi*10 ^6)	Shear Modulus (psi*10 ^6)	Bulk Modulus (psi*10 ^6)
92.0	2.49	9763.8	5005.7	0.32	2.22	0.84	2.07
94.0	2.46	9823.7	5002.0	0.32	2.20	0.83	2.10
96.0	2.48	9787.5	5003.4	0.32	2.21	0.84	2.07
98.0	2.48	9748.0	4987.9	0.32	2.20	0.83	2.07
100.0	2.45	9332.4	4727.4	0.33	1.96	0.74	1.89
102.0	2.39	9221.2	4599.3	0.34	1.82	0.68	1.84
104.0	2.38	8761.9	4336.0	0.34	1.61	0.60	1.65
106.0	2.33	8601.4	4287.6	0.34	1.55	0.58	1.66
108.0	2.36	8600.7	4331.7	0.34	1.60	0.60	1.67
110.0	2.31	8296.6	4011.7	0.35	1.35	0.50	1.47
112.0	2.31	8647.3	4180.5	0.35	1.46	0.54	1.60
114.0	2.31	8674.1	4200.4	0.35	1.48	0.55	1.61
116.0	2.28	8365.8	4005.2	0.35	1.33	0.49	1.49
118.0	2.27	8337.1	3982.4	0.35	1.31	0.49	1.48
120.0	2.29	8711.2	4193.0	0.35	1.47	0.54	1.62
122.0	2.28	8608.5	4116.0	0.35	1.41	0.52	1.58
124.0	2.26	8481.2	4037.7	0.35	1.35	0.50	1.53
126.0	2.26	8471.7	4090.2	0.35	1.34	0.50	1.53
128.0	2.27	8349.2	3980.3	0.35	1.31	0.48	1.48
130.0	2.25	8379.9	3962.5	0.36	1.29	0.48	1.49
132.0	2.27	8506.1	4051.9	0.35	1.36	0.50	1.54
134.0	2.29	8813.1	4238.2	0.35	1.50	0.55	1.66
136.0	2.28	9067.5	4343.3	0.35	1.57	0.58	1.75
138.0	2.31	8928.2	4322.0	0.35	1.57	0.58	1.71
140.0	2.31	8786.2	4249.5	0.35	1.51	0.56	1.65
142.0	2.29	8870.0	4260.9	0.35	1.52	0.56	1.68
144.0	2.29	8698.7	4183.7	0.35	1.46	0.54	1.62
146.0	2.32	8952.4	4356.4	0.34	1.60	0.60	1.72
148.0	2.35	9416.6	4616.1	0.34	1.81	0.67	1.90
150.0	2.36	10412.9	5162.2	0.34	2.29	0.88	2.34
152.0	2.29	8802.4	4231.1	0.35	1.49	0.55	1.65
154.0	2.30	8848.3	4261.4	0.35	1.62	0.56	1.67
156.0	2.32	8634.3	4296.6	0.34	1.56	0.58	1.67
158.0	2.48	8866.4	4538.8	0.32	1.82	0.69	1.71
160.0	2.47	8780.7	4480.0	0.32	1.77	0.67	1.68
162.0	2.48	8970.5	4590.9	0.32	1.88	0.70	1.75
164.0	2.47	9330.5	4767.0	0.32	2.00	0.76	1.89
166.0	2.48	9213.8	4721.1	0.32	1.97	0.75	1.85
168.0	2.48	9128.1	4665.6	0.32	1.92	0.73	1.81
170.0	2.47	9375.7	4782.6	0.32	2.02	0.76	1.91
172.0	2.50	9701.6	4990.2	0.32	2.21	0.84	2.05
174.0	2.47	9629.2	4912.1	0.32	2.13	0.80	2.01
176.0	2.46	10316.7	5254.5	0.32	2.43	0.92	2.31
178.0	2.48	9699.7	5070.1	0.32	2.28	0.86	2.13
180.0	2.45	10177.2	5165.8	0.33	2.34	0.88	2.25
182.0	2.48	9995.2	5114.9	0.32	2.31	0.87	2.17
184.0	2.49	10141.6	5204.2	0.32	2.40	0.91	2.24

Computed Composite Elastic Moduli Data
 by BPB Instruments, Inc.
 Jefferson Cty- Rend Lake Site- Pre-Subsidence (8/88)

Depth (ft)	Unit Weight (g/cc)	Compressive Wave Velocity (ft/s)	Shear Wave Velocity (ft/s)	Poisson's Ratio	Young's Modulus (psi*10 ⁶)	Shear Modulus (psi*10 ⁶)	Bulk Modulus (psi*10 ⁶)
186.0	2.48	10026.7	5132.4	0.32	2.33	0.88	2.19
188.0	2.48	9517.0	4874.3	0.32	2.10	0.79	1.97
190.0	2.51	9717.8	5010.3	0.32	2.24	0.85	2.06
192.0	2.49	9764.2	5009.4	0.32	2.22	0.84	2.07
194.0	2.49	9660.1	4957.1	0.32	2.18	0.82	2.03
196.0	2.51	9632.6	4970.1	0.32	2.20	0.83	2.02
198.0	2.48	9674.6	4944.6	0.32	2.16	0.82	2.03
200.0	2.50	9659.5	5071.2	0.32	2.28	0.87	2.12
202.0	2.49	9961.0	5117.0	0.32	2.32	0.88	2.16
204.0	2.49	9794.3	5028.1	0.32	2.24	0.85	2.09
206.0	2.48	9619.1	4924.1	0.32	2.14	0.81	2.01
208.0	2.48	9617.6	4921.7	0.32	2.14	0.81	2.01
210.0	2.48	9395.1	4808.6	0.32	2.04	0.77	1.92
212.0	2.48	9259.0	4739.1	0.32	1.99	0.75	1.86
214.0	2.49	9236.3	4739.1	0.32	1.99	0.75	1.86
216.0	2.47	9337.0	4763.5	0.32	2.00	0.76	1.89
218.0	2.49	9404.8	4830.5	0.32	2.07	0.78	1.92
220.0	2.47	9402.9	4789.0	0.32	2.03	0.77	1.89
222.0	2.45	9456.6	4801.7	0.33	2.02	0.76	1.94
224.0	2.48	9436.4	4825.5	0.32	2.06	0.78	1.94
226.0	2.49	10359.5	5311.3	0.32	2.51	0.85	2.35
228.0	2.54	14477.9	7546.6	0.31	5.22	1.99	4.65
230.0	2.62	16624.0	8839.6	0.32	7.23	2.78	6.11
232.0	2.54	10683.5	5568.8	0.31	2.82	1.07	2.51
234.0	2.23	8702.0	4082.6	0.36	1.36	0.50	1.60
236.0	2.13	8973.6	4036.1	0.37	1.28	0.47	1.68
238.0	2.53	9534.8	4845.1	0.32	2.20	0.84	1.99
240.0	2.71	9331.0	5076.4	0.29	2.43	0.95	1.92
242.0	2.48	9276.8	4751.1	0.32	2.00	0.75	1.87
244.0	2.48	9368.1	4796.4	0.32	2.03	0.77	1.91
246.0	2.46	9821.6	4999.8	0.33	2.19	0.83	2.09
248.0	2.48	10113.5	5177.0	0.32	2.37	0.90	2.22
250.0	2.47	9693.6	5053.6	0.32	2.25	0.85	2.13
252.0	2.49	9705.0	4974.7	0.32	2.19	0.83	2.05
254.0	2.48	9563.0	4899.6	0.32	2.12	0.80	1.99
256.0	2.48	9378.1	4766.9	0.33	2.00	0.75	1.91
258.0	2.35	8950.1	4399.2	0.34	1.66	0.62	1.72
260.0	2.43	9195.3	4634.3	0.33	1.88	0.71	1.83
262.0	2.46	9521.0	4841.1	0.33	2.06	0.78	1.97
264.0	2.48	9670.6	4949.0	0.32	2.17	0.82	2.03
266.0	2.48	10586.1	5422.1	0.32	2.60	0.98	2.44
268.0	2.46	10194.3	5191.7	0.32	2.37	0.90	2.26
270.0	2.48	9799.9	5020.7	0.32	2.23	0.84	2.09
272.0	2.48	9716.7	4971.0	0.32	2.18	0.83	2.05
274.0	2.48	9549.1	4881.7	0.32	2.10	0.80	1.98
276.0	2.49	10755.0	5522.0	0.32	2.72	1.03	2.53
278.0	2.49	12289.6	6304.7	0.32	3.53	1.34	3.29
280.0	2.47	11066.6	5646.1	0.32	2.81	1.06	2.66

Computed Composite Elastic Moduli Data
by BPB Instruments, Inc.
Jefferson Cty - Rend Lake Site - Pre-Subsidence (8/88)

Depth (ft)	Unit Weight (g/cc)	Compressive Wave Velocity (ft/s)	Shear Wave Velocity (ft/s)	Poisson's Ratio	Young's Modulus (psi*10 ⁶)	Shear Modulus (psi*10 ⁶)	Bulk Modulus (psi*10 ⁶)
282.0	2.43	10927.9	5510.1	0.33	2.64	0.99	2.09
284.0	2.47	11042.5	5627.1	0.32	2.79	1.05	2.65
286.0	2.46	11100.9	5639.6	0.33	2.79	1.05	2.67
288.0	2.45	10436.9	5268.0	0.33	2.45	0.92	2.37
290.0	2.32	6923.2	3356.0	0.35	0.97	0.36	1.04
292.0	1.98	8498.7	3537.0	0.39	1.01	0.37	1.48
294.0	2.45	10139.8	5143.7	0.33	2.32	0.87	2.23
296.0	2.46	10224.1	5206.9	0.32	2.38	0.90	2.27
298.0	2.48	10151.1	5182.8	0.32	2.38	0.90	2.24
300.0	2.48	10378.7	5310.5	0.32	2.49	0.94	2.34
302.0	2.45	10508.0	5327.7	0.33	2.49	0.94	2.39
304.0	2.50	9059.7	4882.1	0.32	1.94	0.74	1.80
306.0	2.44	8751.9	4419.6	0.33	1.71	0.64	1.66
308.0	2.37	9064.8	4475.6	0.34	1.71	0.64	1.77
310.0	2.45	8961.5	4547.3	0.33	1.81	0.68	1.74
312.0	2.52	8671.0	4484.5	0.32	1.80	0.68	1.64
314.0	2.45	8633.5	4375.5	0.33	1.68	0.63	1.62
316.0	2.46	8436.4	4255.2	0.33	1.61	0.61	1.54
318.0	2.40	8819.4	4400.2	0.33	1.67	0.63	1.68
320.0	2.46	9239.5	4706.9	0.32	1.95	0.74	1.85
322.0	2.39	8504.8	4234.1	0.34	1.55	0.58	1.56
324.0	2.35	9406.8	4619.8	0.34	1.83	0.68	1.91
326.0	2.51	12023.4	6199.7	0.32	3.43	1.30	3.15
328.0	2.50	13367.6	6875.6	0.32	4.22	1.60	3.91
330.0	2.53	12606.6	6549.5	0.32	3.86	1.47	3.40
332.0	2.44	11431.7	5770.6	0.33	2.90	1.09	2.83
334.0	2.45	11193.5	5684.2	0.33	2.83	1.07	2.72
336.0	2.47	11035.9	5635.3	0.32	2.80	1.06	2.65
338.0	2.46	11265.2	5725.5	0.33	2.88	1.09	2.75
340.0	2.47	10910.2	5566.0	0.32	2.73	1.03	2.59
342.0	2.45	11135.4	5643.2	0.33	2.79	1.05	2.69
344.0	2.45	11261.5	5714.4	0.33	2.86	1.08	2.75
346.0	2.46	11073.5	5634.4	0.33	2.79	1.05	2.66
348.0	2.46	11406.8	5798.9	0.33	2.95	1.11	2.82
350.0	2.46	11167.6	5674.9	0.33	2.83	1.07	2.71
352.0	2.48	10718.1	5457.2	0.32	2.62	0.99	2.49
354.0	2.48	10524.0	5377.7	0.32	2.55	0.96	2.41
356.0	2.47	10387.4	5301.9	0.32	2.48	0.94	2.34
358.0	2.46	10543.7	5369.7	0.32	2.54	0.96	2.41
360.0	2.49	11208.9	5749.9	0.32	2.93	1.11	2.73
362.0	2.48	10737.9	5502.4	0.32	2.68	1.01	2.51
364.0	2.46	10217.3	5202.1	0.33	2.38	0.90	2.27
366.0	2.46	10007.2	5092.7	0.33	2.28	0.86	2.17
368.0	2.46	9932.1	5058.5	0.32	2.25	0.85	2.14
370.0	2.49	10114.7	5184.3	0.32	2.38	0.90	2.23
372.0	2.47	10422.6	5316.7	0.32	2.49	0.94	2.36
374.0	2.49	10498.0	5384.3	0.32	2.57	0.97	2.40

Computed Composite Elastic Moduli Data
by BPB Instruments, Inc.
Jefferson City - Rend Lake Site - Pre-Subsidence (8/88)

Depth	Unit	Compressive	Shear	Poisson's	Young's	Shear	Bulk
(ft)	Weight	Wave	Wave	Ratio	Modulus	Modulus	Modulus
	(g/cc)	Velocity	Velocity		(psi*10 ⁶)	(psi*10 ⁶)	(psi*10 ⁶)
(ft)	(g/cc)	(ft/s)	(ft/s)		(psi*10 ⁶)	(psi*10 ⁶)	(psi*10 ⁶)
376.0	2.49	10221.6	5243.2	0.32	2.44	0.92	2.27
378.0	2.48	9907.8	5068.3	0.32	2.27	0.86	2.13
380.0	2.45	9659.6	5058.0	0.34	2.25	0.85	2.16
382.0	2.49	10938.9	5620.3	0.32	2.80	1.06	2.60
384.0	2.48	10820.2	5543.8	0.32	2.72	1.03	2.55
386.0	2.48	10564.4	5406.6	0.32	2.58	0.96	2.43
388.0	2.52	10966.4	5672.6	0.32	2.90	1.10	2.64
390.0	2.54	12093.2	6299.8	0.31	3.59	1.37	3.21
392.0	2.49	11807.8	6065.9	0.32	3.26	1.24	3.04
394.0	2.48	11673.9	5967.4	0.32	3.14	1.19	2.96
396.0	2.49	11088.5	5683.6	0.32	2.86	1.08	2.68
398.0	2.46	10622.6	5498.5	0.33	2.65	1.00	2.54
400.0	2.48	10962.8	5606.8	0.32	2.78	1.05	2.61
402.0	2.50	11308.4	5822.5	0.32	3.01	1.14	2.79
404.0	2.47	11100.7	5668.9	0.32	2.83	1.07	2.68
406.0	2.48	10681.8	5466.7	0.32	2.64	1.00	2.48
408.0	2.48	10614.6	5424.0	0.32	2.60	0.98	2.45
410.0	2.48	10524.7	5362.2	0.32	2.56	0.97	2.41
412.0	2.45	9841.8	4994.1	0.33	2.19	0.83	2.11
414.0	2.33	8834.5	4301.4	0.34	1.56	0.58	1.67
416.0	2.22	6784.7	4104.0	0.38	1.40	0.52	1.63
418.0	2.50	10431.2	5364.1	0.32	2.56	0.97	2.38
420.0	2.50	10373.5	5343.7	0.32	2.54	0.96	2.35
422.0	2.49	10619.9	5448.4	0.32	2.63	1.00	2.45
424.0	2.52	10153.5	5260.6	0.32	2.48	0.94	2.25
426.0	2.52	10011.9	5184.0	0.32	2.40	0.91	2.19
428.0	2.47	9748.2	4974.2	0.32	2.18	0.82	2.06
430.0	2.49	9620.9	4943.6	0.32	2.17	0.82	2.01
432.0	2.49	10016.2	5133.0	0.32	2.33	0.88	2.18
434.0	2.49	10274.4	5268.8	0.32	2.46	0.93	2.30
436.0	2.49	10208.4	5242.6	0.32	2.44	0.92	2.27
438.0	2.46	10245.4	5212.1	0.33	2.39	0.90	2.28
440.0	2.45	10110.7	5133.6	0.33	2.31	0.87	2.22
442.0	2.48	9970.2	5094.8	0.32	2.29	0.87	2.16
444.0	2.47	9922.6	5060.7	0.32	2.26	0.85	2.14
446.0	2.45	9948.5	5048.4	0.33	2.23	0.84	2.15
448.0	2.47	10266.7	5239.5	0.32	2.42	0.91	2.29
450.0	2.48	11218.4	5743.1	0.32	2.92	1.10	2.74
452.0	2.45	11611.8	5896.0	0.33	3.05	1.15	2.93
454.0	2.46	12055.4	6132.5	0.33	3.31	1.25	3.16
456.0	2.48	11290.5	5786.9	0.32	2.99	1.13	2.79
458.0	2.45	10669.7	5402.5	0.33	2.55	0.96	2.47
460.0	2.46	10846.1	5510.6	0.33	2.67	1.00	2.55
462.0	2.45	11001.8	5580.9	0.33	2.73	1.03	2.63
464.0	2.44	10947.6	5530.0	0.33	2.67	1.00	2.60
466.0	2.47	10963.8	5586.9	0.32	2.75	1.04	2.61
468.0	2.47	11219.9	5720.8	0.32	2.88	1.09	2.73

Computed Composite Elastic Moduli Data
 by BPB Instruments, Inc.
 Jefferson City— Rend Lake Site— Pre-Subsidence (8/88)

Depth	Unit Weight (g/cc)	Compressive Wave Velocity (ft/s)	Shear Wave Velocity (ft/s)	Poisson's Ratio	Young's Modulus (psi*10 ⁶)	Shear Modulus (psi*10 ⁶)	Bulk Modulus (psi*10 ⁶)
470.0	2.47	11314.7	5775.4	0.32	2.94	1.11	2.78
472.0	2.45	10840.2	5497.2	0.33	2.65	1.00	2.55
474.0	2.45	10488.7	5325.5	0.33	2.49	0.94	2.39
476.0	2.47	9416.9	4810.8	0.32	2.07	0.78	1.96
478.0	2.47	11136.6	5688.2	0.32	2.85	1.08	2.70
480.0	2.45	10732.6	5449.5	0.33	2.61	0.96	2.50
482.0	2.47	8273.4	4219.3	0.32	1.58	0.59	1.49
484.0	2.46	9250.8	4698.9	0.33	1.95	0.73	1.87
486.0	2.46	8464.8	4327.5	0.32	1.67	0.63	1.57
488.0	2.45	8230.0	4171.4	0.33	1.54	0.58	1.49
490.0	2.48	10748.4	5499.6	0.32	2.67	1.01	2.51
492.0	2.48	10604.6	5423.2	0.32	2.60	0.98	2.45
494.0	2.48	11268.6	5769.3	0.32	2.94	1.11	2.76
496.0	2.47	11137.2	5679.2	0.32	2.84	1.07	2.69
498.0	2.45	7780.4	3941.8	0.33	1.42	0.54	1.37
500.0	2.48	8278.7	3212.6	0.32	0.91	0.35	0.86
502.0	2.47	6034.7	3077.4	0.32	0.84	0.32	0.79
504.0	2.46	8128.2	4638.0	0.33	1.81	0.72	1.63
506.0	2.47	10247.6	5225.5	0.32	2.41	0.91	2.28
508.0	2.45	9828.1	4990.1	0.33	2.19	0.83	2.10
510.0	2.47	10315.1	5260.5	0.32	2.44	0.92	2.31
512.0	2.48	10240.1	5233.5	0.32	2.42	0.91	2.28
514.0	2.48	9162.6	4691.9	0.32	1.95	0.74	1.83
516.0	2.47	9518.8	4881.9	0.32	2.09	0.79	1.98
518.0	2.48	10193.1	5210.0	0.32	2.40	0.91	2.26
520.0	2.47	10150.2	5182.7	0.32	2.37	0.89	2.24
522.0	2.47	9889.0	5052.9	0.32	2.25	0.85	2.13
524.0	2.47	10104.5	5160.5	0.32	2.35	0.89	2.22
526.0	2.46	10272.3	5219.6	0.33	2.39	0.90	2.29
528.0	2.47	9831.3	5021.5	0.32	2.23	0.84	2.10
530.0	2.47	9591.5	4887.3	0.32	2.11	0.80	2.01
532.0	2.46	10129.1	5158.8	0.32	2.34	0.88	2.29
534.0	2.46	10104.6	5144.0	0.33	2.33	0.88	2.22
536.0	2.49	10002.3	5133.2	0.32	2.34	0.88	2.18
538.0	2.48	9798.9	5011.6	0.32	2.22	0.84	2.09
540.0	2.46	9575.2	4889.6	0.33	2.08	0.79	1.99
542.0	2.46	9307.7	4736.7	0.33	1.97	0.74	1.88
544.0	2.48	9330.5	4769.3	0.32	2.01	0.76	1.89
546.0	2.47	9667.4	4933.2	0.32	2.15	0.81	2.03
548.0	2.41	10957.2	5491.8	0.33	2.63	0.99	2.60
550.0	2.54	11633.6	6061.4	0.31	3.31	1.26	2.96
552.0	2.50	11576.1	5958.6	0.32	3.16	1.20	2.92
554.0	2.50	11104.1	5720.3	0.32	2.91	1.10	2.69
556.0	2.49	11386.3	5838.7	0.32	3.02	1.14	2.82
558.0	2.51	11265.2	5825.9	0.32	3.03	1.10	2.78
560.0	2.50	11278.2	5812.7	0.32	3.01	1.14	2.77
562.0	2.47	12389.6	6313.7	0.32	3.51	1.33	3.33

Computed Composite Elastic Moduli Data
 by BPB Instruments, Inc.
 Jefferson Cty - Rend Lake Site - Pre-Subsidence (8/86)

Depth	Unit	Compressive	Shear	Poisson's	Young's	Shear	Bulk
(ft)	Weight	Wave	Wave	Ratio	Modulus	Modulus	Modulus
	(g/cc)	Velocity	Velocity		(psi*10 ⁶)	(psi*10 ⁶)	(psi*10 ⁶)
(ft)	(g/cc)	(ft/s)	(ft/s)				
564.0	2.51	11517.2	5948.0	0.32	3.16	1.20	2.89
566.0	2.49	9830.6	5039.0	0.32	2.26	0.86	2.12
568.0	2.47	11520.2	6033.1	0.32	3.21	1.21	3.04
570.0	2.45	11464.1	5820.1	0.33	2.98	1.12	2.86
572.0	2.44	11456.9	5797.9	0.33	2.95	1.11	2.85
574.0	2.44	10623.9	5369.8	0.33	2.52	0.95	2.45
576.0	2.44	9947.6	5032.1	0.33	2.21	0.83	2.15
578.0	2.42	9215.7	4626.4	0.33	1.86	0.70	1.84
580.0	2.19	8557.0	3651.0	0.36	1.26	0.46	1.54
582.0	2.35	9759.1	4792.2	0.34	1.99	0.74	2.07
584.0	2.60	12166.8	6431.4	0.31	3.78	1.45	3.25
586.0	2.56	12407.2	6496.7	0.31	3.85	1.47	3.39
588.0	2.06	9778.9	4244.0	0.38	1.42	0.52	1.98
590.0	2.60	13746.5	7302.3	0.31	5.12	1.98	4.22
592.0	2.54	10027.5	6349.1	0.31	6.29	2.39	5.69
594.0	2.46	9645.2	4908.6	0.33	2.15	0.81	2.04
596.0	2.46	8746.3	4446.2	0.33	1.74	0.65	1.66
598.0	1.77	6091.2	2668.2	0.42	0.64	0.23	1.26
600.0	1.90	9311.6	3675.7	0.4	1.19	0.44	1.76
602.0	2.53	10708.3	5565.1	0.32	2.78	1.06	2.50
604.0	2.42	9435.3	4740.6	0.33	1.95	0.73	1.93
606.0	2.44	9941.8	5021.6	0.33	2.20	0.83	2.14
608.0	2.46	11841.0	6017.9	0.33	3.18	1.20	3.04
610.0	2.59	17316.9	9164.0	0.31	7.78	2.96	6.83
612.0	2.56	17158.6	8987.4	0.31	7.33	2.80	6.46
614.0	2.54	17900.9	9315.1	0.31	7.81	2.97	7.01
616.0	2.56	17016.4	8909.5	0.31	7.18	2.74	6.34
618.0	2.47	13409.5	6859.2	0.32	4.22	1.60	3.95
620.0	2.39	11148.2	5548.7	0.34	2.65	0.99	2.68
622.0	2.40	10342.7	5164.5	0.33	2.31	0.87	2.32
624.0	2.37	11064.7	5462.7	0.34	2.55	0.95	2.63
626.0	2.37	10999.3	5434.2	0.34	2.52	0.94	2.60
628.0	2.38	11241.3	5582.8	0.34	2.68	1.00	2.72
630.0	2.39	11717.0	5829.6	0.34	2.93	1.10	2.96
632.0	2.46	11905.5	6056.4	0.33	3.22	1.22	3.08
634.0	2.43	12003.0	6052.7	0.33	3.20	1.20	3.13
636.0	2.48	13591.9	6950.6	0.32	4.27	1.62	4.02
638.0	2.45	11889.5	6020.1	0.33	3.17	1.19	3.06
640.0	2.44	11328.1	5720.6	0.33	2.86	1.07	2.78
642.0	2.45	11598.7	5875.1	0.33	3.02	1.14	2.92
644.0	2.44	11704.4	5914.2	0.33	3.05	1.15	2.97
646.0	2.44	12259.8	6204.4	0.33	3.37	1.27	3.26
648.0	2.46	11955.3	6078.8	0.33	3.25	1.22	3.10
650.0	2.45	11977.0	6082.6	0.33	3.25	1.22	3.11
652.0	2.45	12628.4	6399.1	0.33	3.59	1.35	3.48
654.0	2.43	12098.7	6098.7	0.33	3.24	1.22	3.17
656.0	2.44	11681.9	5907.6	0.33	3.05	1.15	2.96

Computed Composite Elastic Moduli Data
by BPB Instruments, Inc.
Jefferson Cty – Rend Lake Site– Pre–Subsidence (8/88)

Depth	Unit Weight (g/cc)	Compressive Wave Velocity (ft/s)	Shear Wave Velocity (ft/s)	Poisson's Ratio	Young's Modulus (psi*10 ⁶)	Shear Modulus (psi*10 ⁶)	Bulk Modulus (psi*10 ⁶)
658.0	2.44	10091.2	5094.8	0.33	2.28	0.66	2.22
660.0	2.46	10850.6	5525.0	0.33	2.69	1.02	2.56
662.0	2.45	11829.6	5991.4	0.33	3.14	1.18	3.03
664.0	2.46	11826.3	6015.8	0.33	3.18	1.20	3.04
666.0	2.46	11842.2	6017.2	0.33	3.18	1.20	3.04
668.0	2.45	11916.1	6098.6	0.33	3.19	1.20	3.08
670.0	2.45	11940.7	6054.6	0.33	3.21	0.20	3.09
672.0	2.46	11898.1	6059.1	0.32	3.23	1.22	3.07
674.0	2.47	11784.1	6010.9	0.32	3.18	1.20	3.02
676.0	2.46	11501.5	5942.4	0.33	2.99	1.13	2.87
678.0	2.46	11298.8	5756.0	0.32	2.92	1.10	2.77
680.0	2.47	11735.6	5991.1	0.32	3.17	1.20	2.99
682.0	2.48	11585.6	5901.4	0.32	3.08	1.16	2.92
684.0	2.48	11309.9	5785.2	0.32	2.96	1.12	2.78
686.0	2.47	11851.3	6043.1	0.32	3.22	1.21	3.05
688.0	2.48	11604.4	5930.7	0.32	3.10	1.17	2.93
690.0	2.46	11301.2	5745.4	0.33	2.90	1.09	2.77

APPENDIX H Postsubsidence Geophysical Logs

Computed Composite Elastic Moduli Data
by BPB Instruments, Inc.
Jefferson Cty— Rend Lake Site— Post—Subsidence (9/89)

Depth (ft)	Unit Weight (g/cc)	Compressive Wave Velocity (ft/s)	Shear Wave Velocity (ft/s)	Poisson's Ratio	Young's Modulus (psi*10 ⁶)	Shear Modulus (psi*10 ⁶)	Bulk Modulus (psi*10 ⁶)
125.0	2.30	8520.3	4103.1	0.35	1.40	0.52	1.55
127.0	2.30	8318.9	4011.1	0.35	1.34	0.50	1.48
129.0	2.25	8144.9	3863.3	0.35	1.23	0.45	1.41
131.0	2.29	8143.2	3913.1	0.35	1.28	0.47	1.42
133.0	2.30	8201.2	3951.4	0.35	1.30	0.48	1.44
135.0	2.32	7970.1	3868.4	0.35	1.26	0.47	1.36
137.0	2.31	8375.2	4049.8	0.35	1.37	0.51	1.50
139.0	2.31	8246.3	3998.8	0.35	1.34	0.50	1.46
141.0	2.32	8321.3	4039.1	0.35	1.38	0.51	1.49
143.0	2.31	8820.0	4264.4	0.35	1.53	0.57	1.67
145.0	2.40	13807.9	6884.9	0.33	4.10	1.54	4.13
147.0	2.42	9258.8	4660.6	0.33	1.90	0.72	1.86
149.0	2.34	8611.6	4207.0	0.34	1.50	0.56	1.59
151.0	2.26	7832.1	3718.4	0.35	1.15	0.42	1.31
153.0	2.39	8863.4	4424.6	0.33	1.70	0.64	1.71
155.0	2.44	8432.5	4259.5	0.33	1.58	0.60	1.54
157.0	2.45	8796.8	4460.9	0.33	1.74	0.66	1.68
159.0	2.47	8693.4	4433.7	0.32	1.73	0.65	1.64
161.0	2.44	9037.1	4562.1	0.33	1.82	0.68	1.77
163.0	2.40	9641.0	4800.2	0.33	1.99	0.74	2.01
165.0	2.44	9178.9	4603.6	0.33	1.89	0.72	1.82
167.0	2.42	9049.1	4539.8	0.33	1.79	0.67	1.77
169.0	2.43	9830.6	4943.7	0.33	2.13	0.80	2.10
171.0	2.44	8899.3	5007.4	0.33	2.19	0.83	2.12
173.0	2.46	9598.3	4883.5	0.33	2.10	0.79	2.00
175.0	2.44	9607.0	4854.9	0.33	2.06	0.77	2.00
177.0	2.43	9344.6	4716.0	0.33	1.94	0.73	1.89
179.0	2.44	9880.5	4998.4	0.33	2.18	0.82	2.12
181.0	2.49	9785.5	5027.5	0.32	2.24	0.85	2.09
183.0	2.47	9827.5	5010.5	0.32	2.21	0.84	2.10
185.0	2.46	10086.1	5114.1	0.33	2.32	0.88	2.20
187.0	2.30	9607.2	4624.1	0.35	1.79	0.66	1.97
189.0	2.37	9458.3	4668.4	0.34	1.87	0.70	1.92
191.0	2.42	9704.8	4879.0	0.33	2.07	0.78	2.04
193.0	2.45	9654.3	4898.0	0.33	2.10	0.79	2.02
195.0	2.44	9707.7	4914.6	0.33	2.11	0.80	2.04
197.0	2.43	9676.2	4883.4	0.33	2.08	0.78	2.03
199.0	2.46	9859.4	5010.7	0.33	2.20	0.83	2.11
201.0	2.44	8792.0	4950.0	0.33	2.14	0.81	2.08
203.0	2.46	9563.9	4661.0	0.33	2.07	0.78	1.99
205.0	2.46	9489.7	4811.8	0.33	2.03	0.76	1.95
207.0	2.44	9397.8	4750.2	0.33	1.97	0.74	1.91
209.0	2.45	9012.2	4568.8	0.33	1.83	0.69	1.76
211.0	2.45	8968.9	4552.6	0.33	1.82	0.69	1.75
213.0	2.44	8961.7	4536.7	0.33	1.80	0.68	1.74
215.0	2.44	9147.4	4627.0	0.33	1.87	0.70	1.81
217.0	2.44	9303.5	4701.5	0.33	1.93	0.73	1.88

Computed Composite Elastic Moduli Data
 by BPB Instruments, Inc.
 Jefferson Cty-- Rend Lake Site-- Post--Subsidence (9/89)

Depth (ft)	Unit Weight (g/cc)	Compressive Wave Velocity (ft/s)	Shear Wave Velocity (ft/s)	Poisson's Ratio	Young's Modulus (psi*10 ⁶)	Shear Modulus (psi*10 ⁶)	Bulk Modulus (psi*10 ⁶)
219.0	2.44	9117.9	4608.3	0.33	1.85	0.70	1.80
221.0	2.45	9146.1	4631.1	0.33	1.88	0.71	1.81
223.0	2.45	9022.5	4576.6	0.33	1.84	0.69	1.77
225.0	2.44	10615.3	5358.3	0.33	2.53	0.95	2.47
227.0	2.46	14280.8	7271.2	0.32	4.70	1.77	4.47
229.0	2.52	16760.0	8685.5	0.32	6.86	2.61	6.21
231.0	2.54	11762.8	6141.8	0.31	3.68	1.40	3.25
233.0	2.34	7459.0	3652.4	0.34	1.13	0.42	1.20
235.0	2.12	7727.0	3473.6	0.37	0.95	0.35	1.25
237.0	2.39	9050.3	4496.8	0.34	1.75	0.65	1.77
239.0	2.48	9100.7	4659.2	0.32	1.92	0.73	1.80
241.0	2.47	8897.8	4536.2	0.32	1.81	0.68	1.72
243.0	2.45	9203.9	4670.9	0.33	1.91	0.72	1.84
245.0	2.43	9718.5	4899.6	0.33	2.09	0.79	2.05
247.0	2.43	9888.3	4988.9	0.33	2.17	0.82	2.12
249.0	2.43	9625.8	4856.6	0.33	2.06	0.77	2.01
251.0	2.45	9066.0	4595.7	0.33	1.85	0.70	1.78
253.0	2.43	9103.7	4589.1	0.33	1.83	0.69	1.79
255.0	2.43	9329.3	4703.3	0.33	1.93	0.72	1.88
257.0	2.41	9230.1	4630.0	0.33	1.86	0.70	1.84
259.0	2.17	8106.7	3721.2	0.37	1.12	0.41	1.39
261.0	2.40	8767.5	4370.1	0.33	1.65	0.62	1.66
263.0	2.43	8927.2	4501.2	0.33	1.77	0.66	1.73
265.0	2.45	9879.5	5003.2	0.33	2.19	0.82	2.12
267.0	2.48	9515.4	4867.5	0.32	2.09	0.79	1.97
269.0	2.45	9626.8	4887.2	0.33	2.09	0.79	2.01
271.0	2.46	9644.3	4898.3	0.33	2.11	0.79	2.02
273.0	2.45	9585.4	4864.9	0.33	2.08	0.78	1.99
275.0	2.46	11118.1	5655.2	0.33	2.82	1.06	2.70
277.0	2.45	10996.7	5573.5	0.33	2.72	1.03	2.62
279.0	2.43	10387.7	5239.3	0.33	2.39	0.90	2.34
281.0	2.41	10563.2	5298.7	0.33	2.44	0.92	2.41
283.0	2.43	10581.6	5330.1	0.33	2.47	0.93	2.42
285.0	2.42	10255.3	5143.8	0.33	2.29	0.86	2.27
287.0	2.42	10346.5	5194.3	0.33	2.34	0.88	2.32
289.0	2.37	10209.2	5055.8	0.34	2.21	0.83	2.25
291.0	1.87	7675.2	3010.1	0.41	0.66	0.24	1.18
293.0	2.42	10288.8	5169.7	0.33	2.32	0.87	2.29
295.0	2.47	9989.6	5101.8	0.32	2.30	0.87	2.17
297.0	2.48	9976.7	5111.2	0.32	2.31	0.87	2.17
299.0	2.48	10064.3	5157.6	0.32	2.35	0.89	2.20
301.0	2.44	9867.0	4995.7	0.33	2.18	0.82	2.11
303.0	2.43	9597.8	4843.2	0.33	2.05	0.77	2.00
305.0	2.46	9703.7	4943.7	0.33	2.17	0.82	2.06
307.0	2.41	8775.8	4394.6	0.33	1.67	0.63	1.66
309.0	2.42	8551.7	4298.4	0.33	1.61	0.60	1.58
311.0	2.42	9113.2	4575.9	0.33	1.82	0.68	1.80

Computed Composite Elastic Moduli Data
by BPB Instruments, Inc.
Jefferson Cty- Rend Lake Site- Post-Subsidence (9/89)

Depth (ft)	Unit Weight (g/cc)	Compressive Wave Velocity (ft/s)	Shear Wave Velocity (ft/s)	Poisson's Ratio	Young's Modulus (psi*10 ⁶)	Shear Modulus (psi*10 ⁶)	Bulk Modulus (psi*10 ⁶)
313.0	2.44	8745.0	4417.2	0.33	1.71	0.64	1.66
315.0	2.35	8770.9	4318.1	0.34	1.59	0.59	1.65
317.0	2.37	7916.3	3909.6	0.34	1.31	0.49	1.35
319.0	2.40	7396.1	3686.6	0.33	1.17	0.44	1.18
321.0	2.39	8437.6	4195.4	0.34	1.51	0.57	1.54
323.0	2.39	8563.0	4260.2	0.34	1.56	0.59	1.58
325.0	2.38	7487.5	3718.6	0.34	1.19	0.45	1.21
327.0	2.46	6038.3	3072.9	0.33	0.84	0.32	0.80
329.0	2.51	6956.1	3585.1	0.32	1.21	0.46	1.12
331.0	2.44	10394.8	5256.6	0.33	2.42	0.91	2.34
333.0	2.42	10769.1	5412.4	0.33	2.55	0.96	2.51
335.0	2.44	8002.0	4042.7	0.33	1.46	0.55	1.42
337.0	2.43	9867.5	4972.2	0.33	2.16	0.81	2.12
339.0	2.43	10437.8	5265.9	0.33	2.42	0.91	2.35
341.0	2.44	10012.7	5054.0	0.33	2.23	0.84	2.17
343.0	2.42	10277.7	5170.8	0.33	2.32	0.87	2.29
345.0	2.41	10163.7	5093.2	0.33	2.25	0.84	2.23
347.0	2.43	10855.1	5473.9	0.33	2.62	0.98	2.55
349.0	2.43	10324.9	5201.3	0.33	2.36	0.89	2.31
351.0	2.43	11125.6	5608.7	0.33	2.74	1.03	2.68
353.0	2.44	10447.5	5275.5	0.33	2.43	0.91	2.37
355.0	2.44	9689.4	4902.8	0.33	2.10	0.79	2.04
357.0	2.45	10168.1	5163.6	0.33	2.34	0.88	2.25
359.0	2.45	10078.7	5108.0	0.33	2.28	0.86	2.20
361.0	2.46	10644.3	5415.7	0.33	2.58	0.97	2.46
363.0	2.45	11000.5	5581.2	0.33	2.73	1.03	2.63
365.0	2.46	9979.5	5080.4	0.33	2.27	0.86	2.17
367.0	2.44	9650.3	4871.7	0.33	2.07	0.78	2.02
369.0	2.44	9187.6	4645.0	0.33	1.89	0.71	1.83
371.0	2.44	9533.9	4824.2	0.33	2.03	0.77	1.97
373.0	2.45	10145.6	5142.6	0.33	2.32	0.87	2.23
375.0	2.40	10092.8	5121.2	0.33	2.30	0.87	2.21
377.0	2.44	10273.1	5201.8	0.33	2.37	0.89	2.29
379.0	2.44	9691.8	4905.6	0.33	2.10	0.79	2.04
381.0	2.43	9202.6	4640.6	0.33	1.88	0.71	1.83
383.0	2.44	10025.7	5068.8	0.33	2.26	0.85	2.19
385.0	2.45	9996.6	5066.7	0.33	2.25	0.85	2.17
387.0	2.43	9941.7	5012.6	0.33	2.19	0.82	2.14
389.0	2.46	9801.6	4991.2	0.32	2.19	0.83	2.09
391.0	2.43	10853.1	5464.6	0.33	2.62	0.98	2.57
393.0	2.46	10459.1	5318.7	0.33	2.50	0.94	2.39
395.0	2.47	10513.5	5369.0	0.32	2.55	0.96	2.41
397.0	2.44	10400.6	5259.5	0.33	2.42	0.91	2.35
399.0	2.43	10501.8	5292.4	0.33	2.44	0.92	2.39
401.0	2.43	10599.3	5348.5	0.33	2.49	0.94	2.43
403.0	2.43	11256.5	5681.8	0.33	2.82	1.06	2.75
405.0	2.45	10973.0	5572.8	0.33	2.73	1.03	2.61

Computed Composite Elastic Moduli Data
by BPB Instruments, Inc.
Jefferson Cty- Rend Lake Site- Post-Subsidence (9/89)

Depth (ft)	Unit Weight (g/cc)	Compressive Wave Velocity (ft/s)	Shear Wave Velocity (ft/s)	Poisson's Ratio	Young's Modulus (psi*10 ⁶)	Shear Modulus (psi*10 ⁶)	Bulk Modulus (psi*10 ⁶)
407.0	2.45	10433.4	5282.3	0.33	2.44	0.92	2.36
409.0	2.46	10177.7	5178.1	0.33	2.36	0.89	2.25
411.0	2.48	10194.2	5213.9	0.32	2.40	0.91	2.26
413.0	2.46	9479.0	4806.2	0.33	2.03	0.76	1.95
415.0	2.44	10090.5	5094.2	0.33	2.26	0.85	2.21
417.0	2.39	8787.4	4368.8	0.34	1.66	0.62	1.67
419.0	2.11	8399.6	3747.5	0.38	1.10	0.40	1.47
421.0	2.41	9585.4	4797.0	0.33	2.00	0.75	1.99
423.0	2.47	9787.7	4996.5	0.32	2.20	0.83	2.08
425.0	2.47	9935.3	5070.5	0.32	2.27	0.86	2.15
427.0	2.49	10086.5	5172.8	0.32	2.37	0.90	2.21
429.0	2.50	9708.5	4996.6	0.32	2.22	0.84	2.05
431.0	2.43	9438.7	4761.2	0.33	1.98	0.74	1.93
433.0	2.46	9413.7	4791.2	0.33	2.02	0.76	1.92
435.0	2.46	9528.5	4849.0	0.33	2.07	0.78	1.97
437.0	2.45	9807.2	4975.4	0.33	2.17	0.82	2.09
439.0	2.47	9998.9	5099.1	0.32	2.29	0.86	2.17
441.0	2.45	9430.0	4778.1	0.33	2.00	0.75	1.93
445.0	2.44	9818.2	4964.9	0.33	2.15	0.81	2.09
447.0	2.46	9801.5	4987.0	0.33	2.19	0.82	2.09
448.0	2.43	9536.4	4810.4	0.33	2.02	0.76	1.97
449.0	2.46	9409.1	4788.1	0.33	2.02	0.76	1.92
451.0	2.44	9199.1	4657.4	0.33	1.90	0.72	1.84
453.0	2.47	8845.8	4518.8	0.32	1.80	0.68	1.70
455.0	2.43	9238.4	4659.5	0.33	1.89	0.71	1.85
457.0	2.42	9693.1	4871.9	0.33	2.07	0.78	2.04
459.0	2.43	12295.1	6204.0	0.33	3.36	1.26	3.27
461.0	2.44	11575.9	5848.0	0.33	2.99	1.12	2.90
463.0	2.43	10758.7	5419.3	0.33	2.56	0.96	2.51
465.0	2.43	10494.0	5284.5	0.33	2.43	0.91	2.39
467.0	2.45	10225.4	5189.6	0.33	2.36	0.89	2.27
469.0	2.44	10767.8	5440.5	0.33	2.59	0.97	2.51
471.0	2.44	10544.4	5325.8	0.33	2.48	0.93	2.41
473.0	2.45	10619.3	5390.5	0.33	2.55	0.96	2.45
475.0	2.41	10735.0	5373.0	0.33	2.50	0.94	2.49
477.0	2.43	10457.2	5271.8	0.33	2.42	0.91	2.37
479.0	2.43	10610.0	5348.5	0.33	2.49	0.94	2.44
481.0	2.43	10746.5	5416.7	0.33	2.56	0.96	2.50
483.0	2.43	10309.6	5189.1	0.33	2.34	0.88	2.30
485.0	2.43	10489.3	5281.6	0.33	2.43	0.91	2.38
487.0	2.44	10234.6	5177.7	0.33	2.34	0.88	2.27
489.0	2.46	10180.9	5185.9	0.32	2.37	0.89	2.25
491.0	2.45	10567.8	5355.0	0.33	2.51	0.95	2.42
493.0	2.45	10189.0	5161.1	0.33	2.33	0.88	2.25

Computed Composite Elastic Moduli Data
by BPB Instruments, Inc.
Jefferson Cty— Rend Lake Site— Post—Subsidence (9/89)

Depth (ft)	Unit Weight (g/cc)	Compressive Wave Velocity (ft/s)	Shear Wave Velocity (ft/s)	Poisson's Ratio	Young's Modulus (psi*10 ^{^6})	Shear Modulus (psi*10 ^{^6})	Bulk Modulus (psi*10 ^{^6})
495.0	2.44	10406.9	5262.7	0.33	2.42	0.91	2.35
497.0	2.43	10418.0	5257.0	0.33	2.41	0.91	2.35
499.0	2.48	10368.7	5308.7	0.32	2.50	0.94	2.34
501.0	2.44	10741.0	5427.7	0.33	2.57	0.97	2.50
503.0	2.46	10533.0	5363.1	0.32	2.53	0.95	2.41
505.0	2.46	10513.4	5350.3	0.33	2.52	0.95	2.40
507.0	2.45	10219.5	5181.1	0.33	2.35	0.89	2.27
509.0	2.44	10230.0	5165.6	0.33	2.33	0.88	2.27
511.0	2.45	9765.4	4946.4	0.33	2.14	0.81	2.07
513.0	2.43	9336.2	4707.7	0.33	1.93	0.73	1.89

APPENDIX I Rock Mechanics Laboratory Data

ILLINOIS STATE GEOLOGICAL SURVEY ROCK MECHANICS LABORATORY
JEFFERSON COUNTY -- POST-SUBSIDENCE BOREHOLE: T402

SAMPLE ID DEPTH (FT)	ROCK TYPE	qu (psi)	HEIGHT/ DIAMETER RATIO qu SAMPLES	MOISTURE CONTENT (@qu) (%)	MODULUS psi x 10 ⁶	SHORE HARDNESS	AVERAGE INDIRECT TENSILE STRENGTH (psi)	AVERAGE AXIAL POINT LOAD INDEX (psi)	AVERAGE T500 (MPa)
90.0	SS	3,934	1.80	7.93	0.78	8	319	626	2.71
99.0	SH	2,089	1.74	3.72	0.22	7	324	654	2.84
106.0	SH	3,821	1.91	4.20	0.46	9	337	448	2.02
117.0	SS	2,903	2.02	8.85	0.56	9	223	428	1.85
145.0	SS	11,440	1.93	1.52	2.67	35	1026	2387	9.91
157.0	SH	2,855	1.83	4.24	0.25	10	428	523	3.14
186.0	SLTST	5,058	1.75	3.61	0.56	9	485	854	3.96
201.0	SH	3,932	1.91	3.12	0.49	12	415	702	2.76
222.0	SH	4,204	2.10	**	0.59	9	579	654	2.52
230.0	LS	29,953	1.99	0.40	4.29	44	1528	3743	14.84
234.0	SH	6,435	2.01	2.90	0.64	26	872	874	3.45
245.0	SLTST	5,157	2.07	2.90	0.82	9	503	1100	4.21
280.0	SLTST	6,004	1.98	2.33	0.74	11	451	627	2.60
300.0	CLST	2,867	2.00	2.92	**	8	432	690	2.99
311.0	CLST	**	**	**	**	**	198	242	1.00
320.0	LS	**	**	**	**	**	217	339	1.26
328.0	LS	12,688	2.04	0.71	1.67	38	1494	2536	10.35
337.0	SLST	6,986	1.87	0.95	1.27	20	491	1020	3.88
348.0	SLTST	6,624	2.01	2.40	0.90	10	617	934	3.74
357.0	SH	**	**	**	**	**	609	937	4.88
364.0	SH	5,958	1.88	1.35	0.74	23	737	791	3.46
372.0	SH	6,824	1.97	3.18	0.76	12	644	1094	4.23
388.0	SLTST	7,479	1.75	2.09	0.80	11	638	939	3.24
398.0	SLTST	5,425	1.93	3.50	0.81	11	585	1013	3.88
400.0	SLTST	5,918	1.87	2.27	0.94	15	633	940	3.72
412.0	SLTST	6,313	1.87	1.88	0.92	19	551	1085	4.23
426.0	CLST	6,719	1.83	1.02	0.75	11	367	725	3.01
428.0	CLST	**	**	**	**	**	523	665	2.60
445.0	SH	**	**	**	**	12	610	881	3.36
449.0	SH	6,852	1.89	3.02	0.72	11	**	949	3.65
460.0	SLTST	9,508	1.94	1.60	1.46	21	548	1564	5.86
469.0	SLTST	7,912	1.96	1.81	1.03	13	516	1276	4.87
481.0	SLTST	8,416	1.91	1.85	0.98	16	570	1199	4.54
488.0	SLTST	4,089	1.93	2.15	0.78	16	592	1148	4.27
498.0	SLTST	8,011	1.93	1.51	0.95	29	740	960	3.60
505.0	SLTST	7,782	1.87	1.99	1.02	14	631	1154	4.27
516.0	SLTST	**	**	**	**	**	**	1062	3.89

** No sample available.

APPENDIX J Split-Spoon Sample Descriptions and Soil Lab Test

ILLINOIS STATE GEOLOGICAL SURVEY
SPLIT-SPOON SAMPLES FROM JEFFERSON COUNTY
REND LAKE SITE -- PRE-SUBSIDENCE

Depth of Sample (ft)	Unit Description	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Moisture Content (%)	Unified Soil Classification	SPT N (blows/ft)	qu (tsf)	Unit Weight (pcf)	Dry Unit Weight (pcf)
0-1	loess, silty clay	29.0	24.7	4.3	8.7	ML	**	**	**	**
1-2	loess, w/ weathered shale	27.7	20.9	6.8	8.9	CL-ML	28	**	**	**
2-3	loess, w/ weathered shale	37.8	21.3	16.5	15.7	CL	24	**	**	**
3-4.5	loess, silty clay	42.3	19.5	22.8	15.3	CL	50	> 4.5	116.4	101.0
4.5-6	clay, w/ weathered shale	44.6	18.5	26.1	19.5	CL	32	4.3	121.6	101.8
6-7.5	silty clay	39.6	16.2	23.4	18.4	CL	25	3.6	130.0	109.8
7.5-9	silty clay	41.0	16.4	24.6	18.7	CL	27	> 4.5	130.9	110.3
9-10.5	silty clay	37.8	15.5	22.3	16.5	CL	34	> 4.5	139.9	120.1
10.5-12	silty clay	26.5	16.9	9.6	13.2	CL	90	2.9	124.3	109.8
12-12.85	silty clay	26.8	18.0	8.8	10.8	CL	100	> 4.5	129.5	116.9

Notes:

qu = unconfined compressive strength measured by pocket penetrometer

** no sample available

APPENDIX K Data and Hydrographs of Drift and Bedrock Wells

Piezometer Information

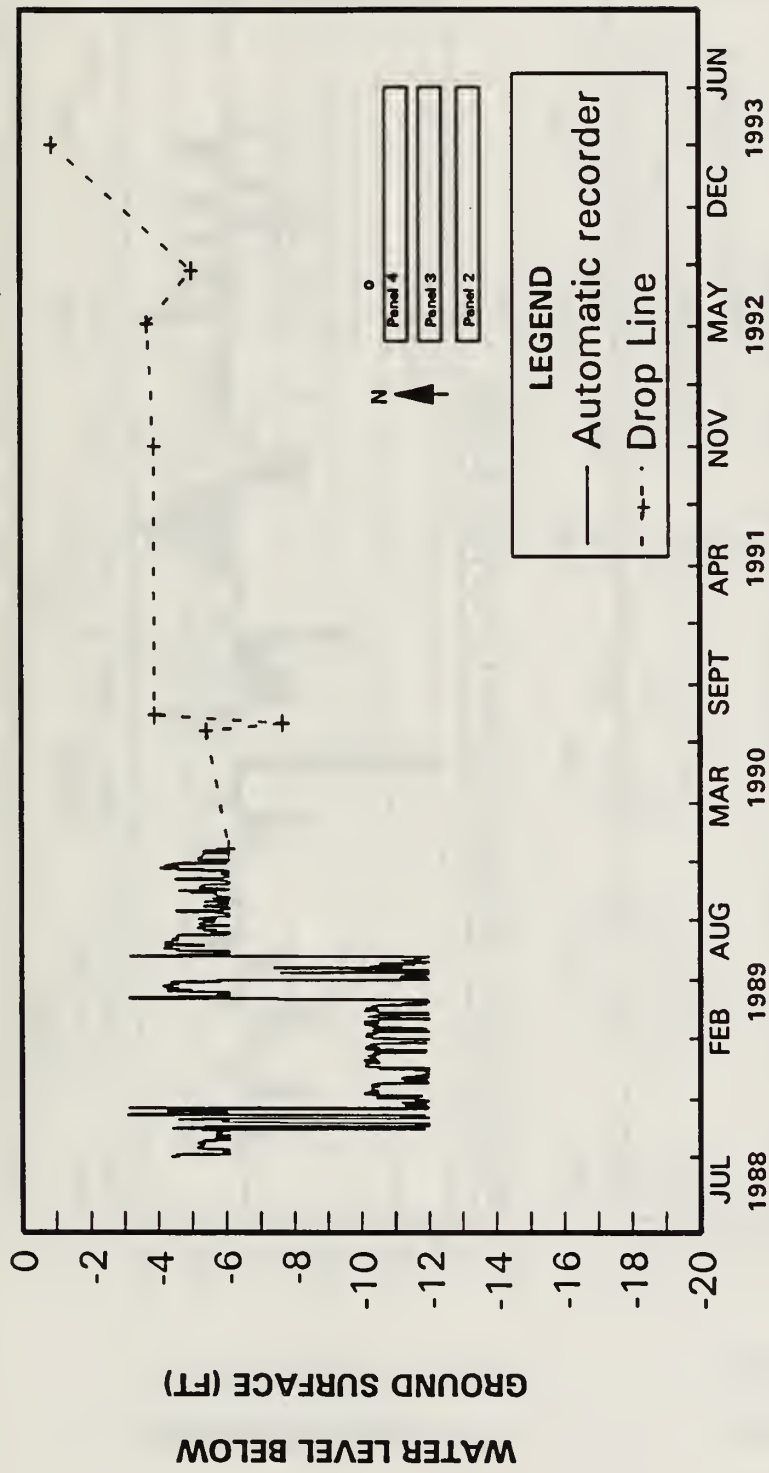
No.	Unit	Screened Section (ft) BGL	Well Top Elev. (ft) AMSL Pre-Subs.	Well Top Elev. (ft) AMSL Post-Subs.	Location/Comment
P200	Drift	11.2-13.7	436.876	436.953	N of panel 4
P201	Drift	12.7-15.2	438.192	438.240	N of panel 4
P202	Drift	7.3-9.8	435.424	429.04	CL panel 3, w/P301
P203	Drift	4.8-7.3	433.646	432.25	Within panel 3
P204	Drift	8.7-11.2	436.102	435.03	S B.P. panel 3
P300	Sandstone	125-135	435.429	434.137	S B.P. panel 3
P301	Sandstone	135-145	435.586	429.05	CL panel 3
P302	Sandstone	136-146	441.055	439.230	Tens. area panel 4
P303	Sandstone	102-112	440.54	433.553	panel 4
P304	Sandstone	142-152	439.96	433.203	panel 4
P305	Deep Shale	299-319	439.285	432.421	panel 4
P306	Sandstone	145-155	439.2355	439.401	Control N of panel 4
P350	Sandstone	75-155	438.922	431.943	Panel 4 CL well
T402	Sandstone	108-128	N/A	439.805	Post-piez.

B.P. = barrier pillar

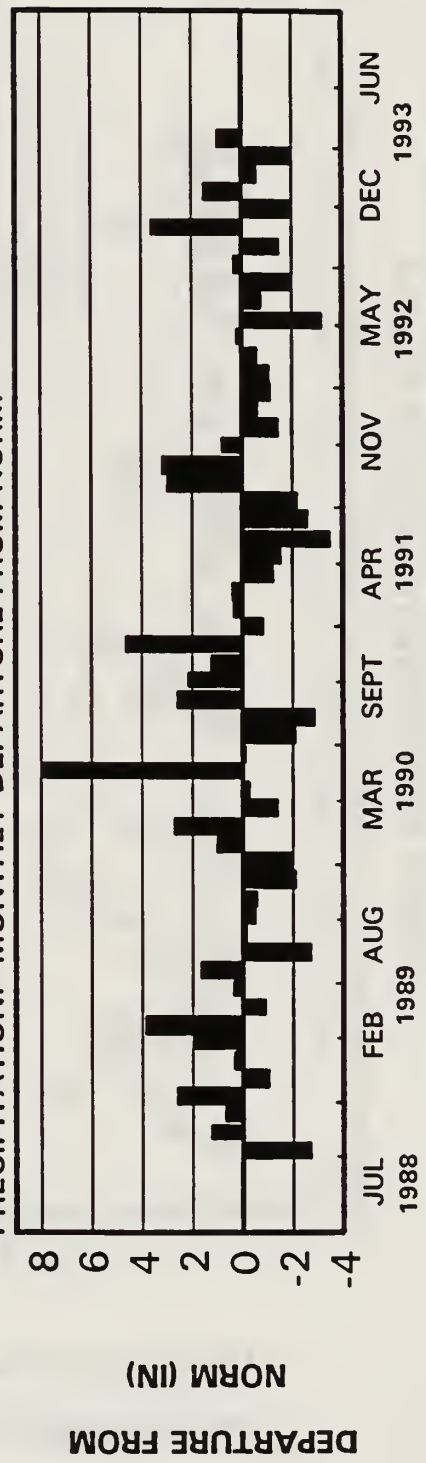
CL = centerline

N/A = not available

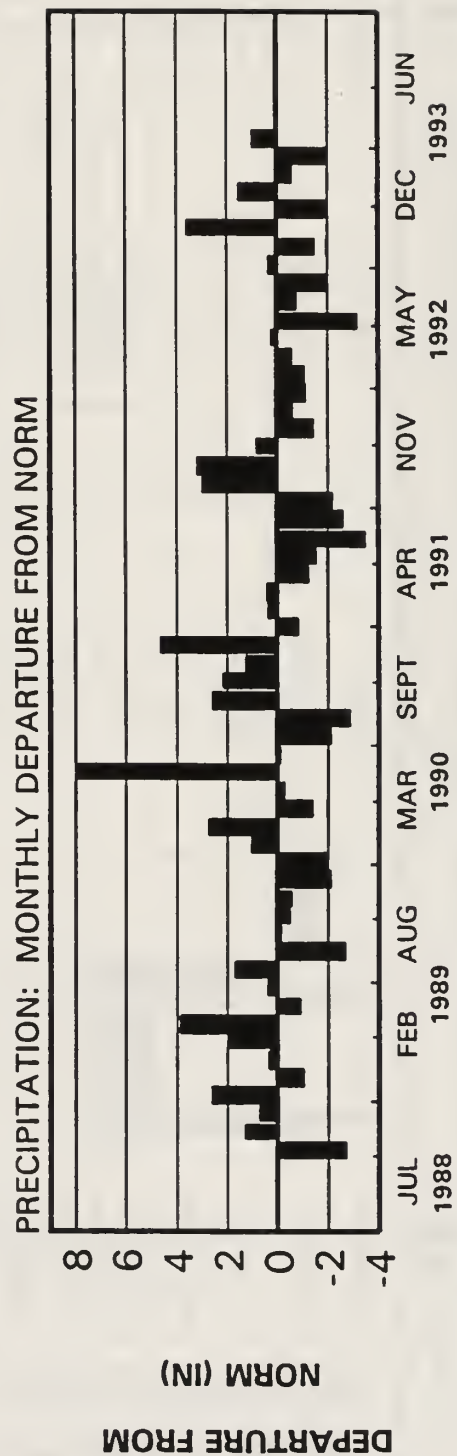
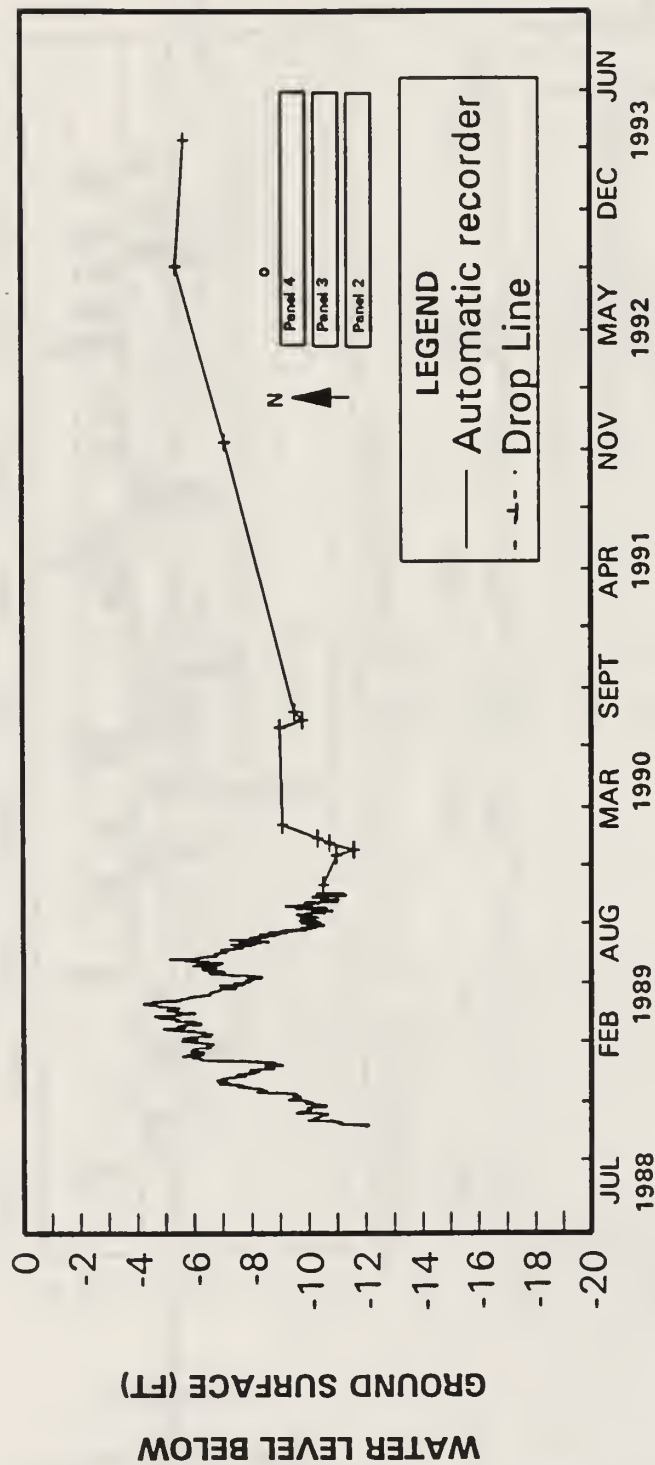
Hydrograph of P200-Drift Control Piezometer located
460 ft from the North edge of Panel 4



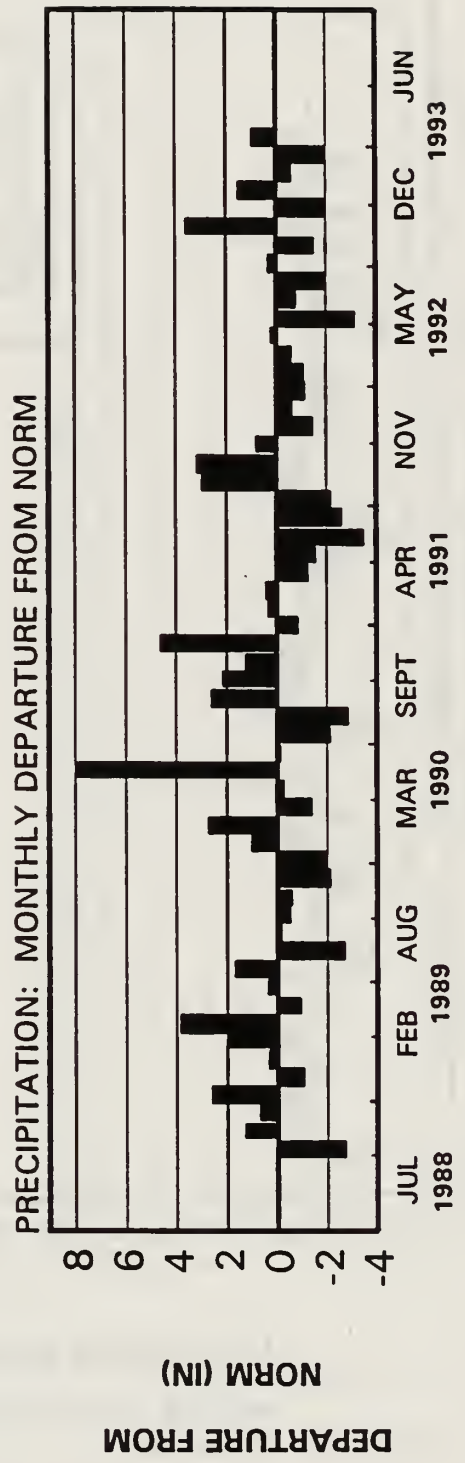
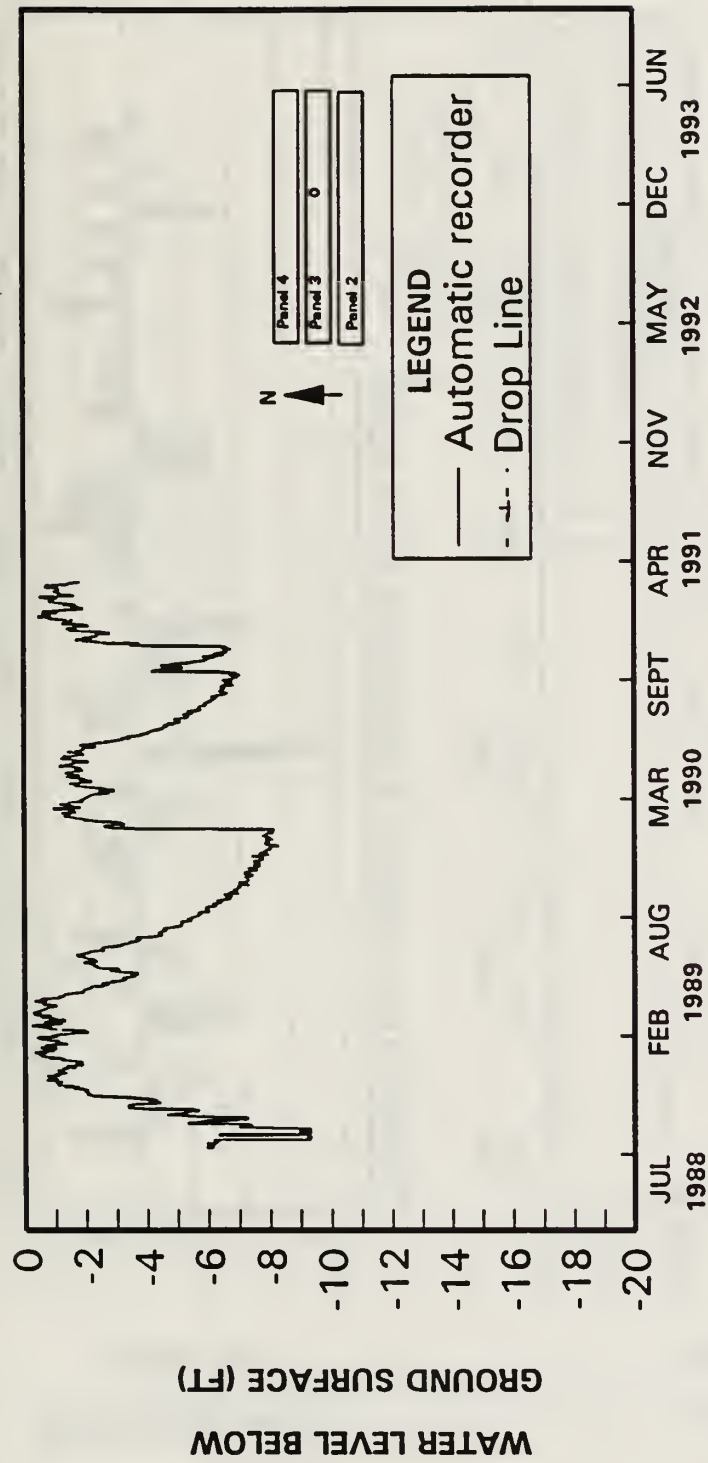
PRECIPITATION: MONTHLY DEPARTURE FROM NORM



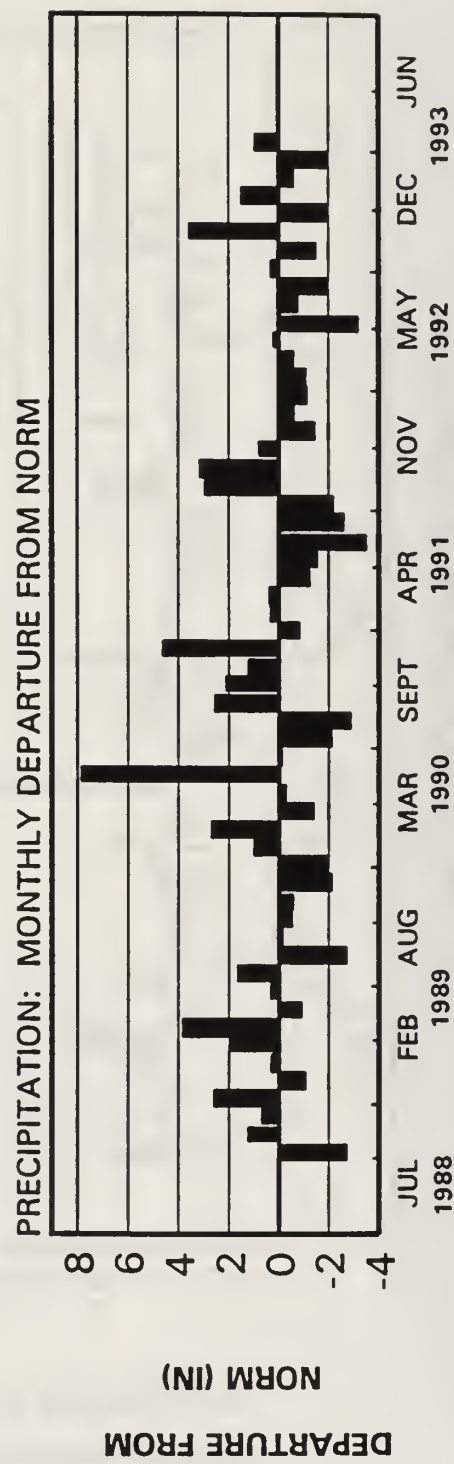
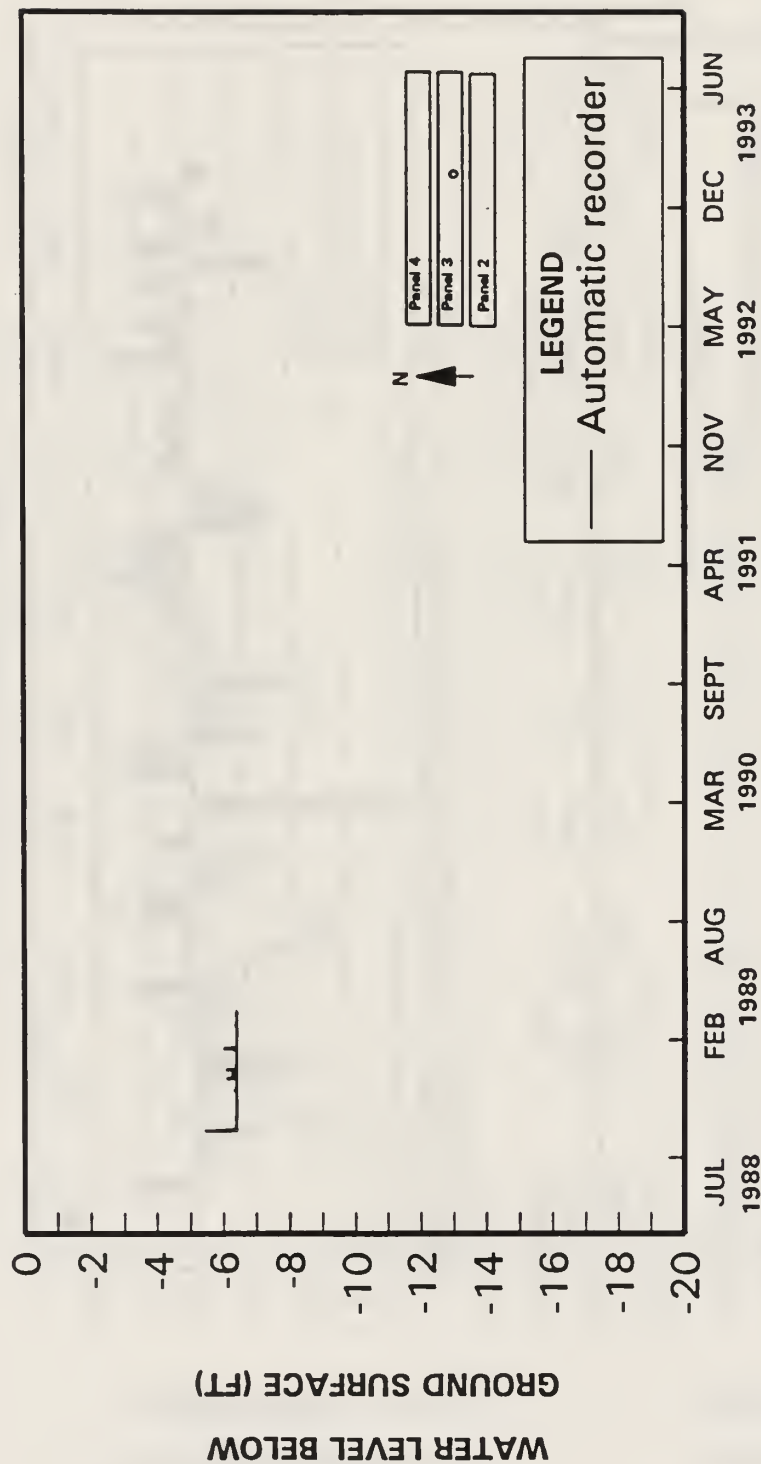
Hydrograph of P201-Drift Control Piezometer located
460 ft from the North edge of Panel 4



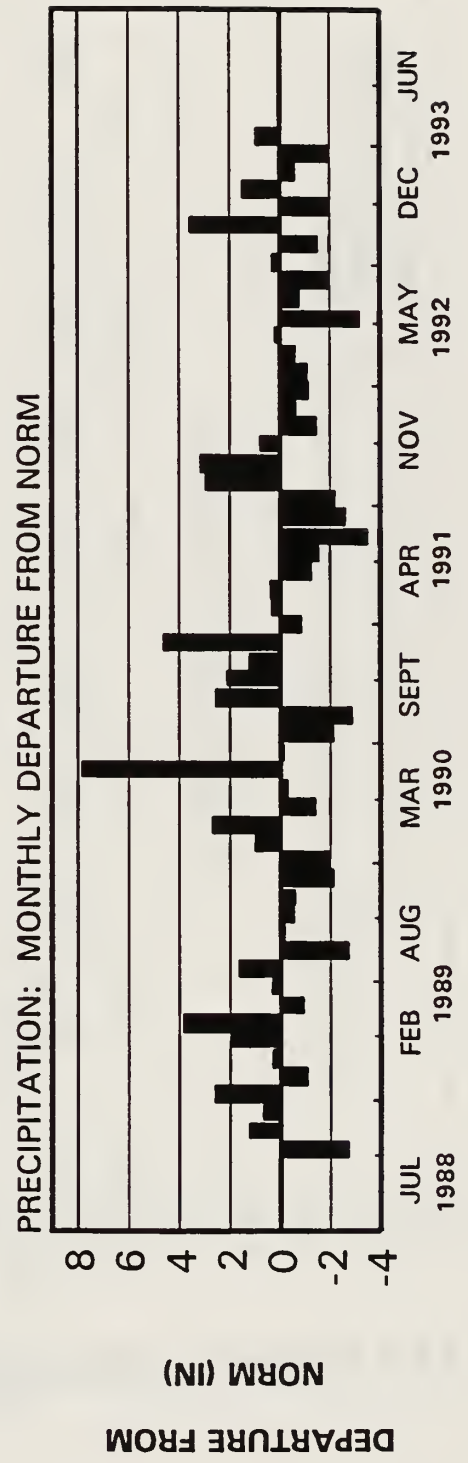
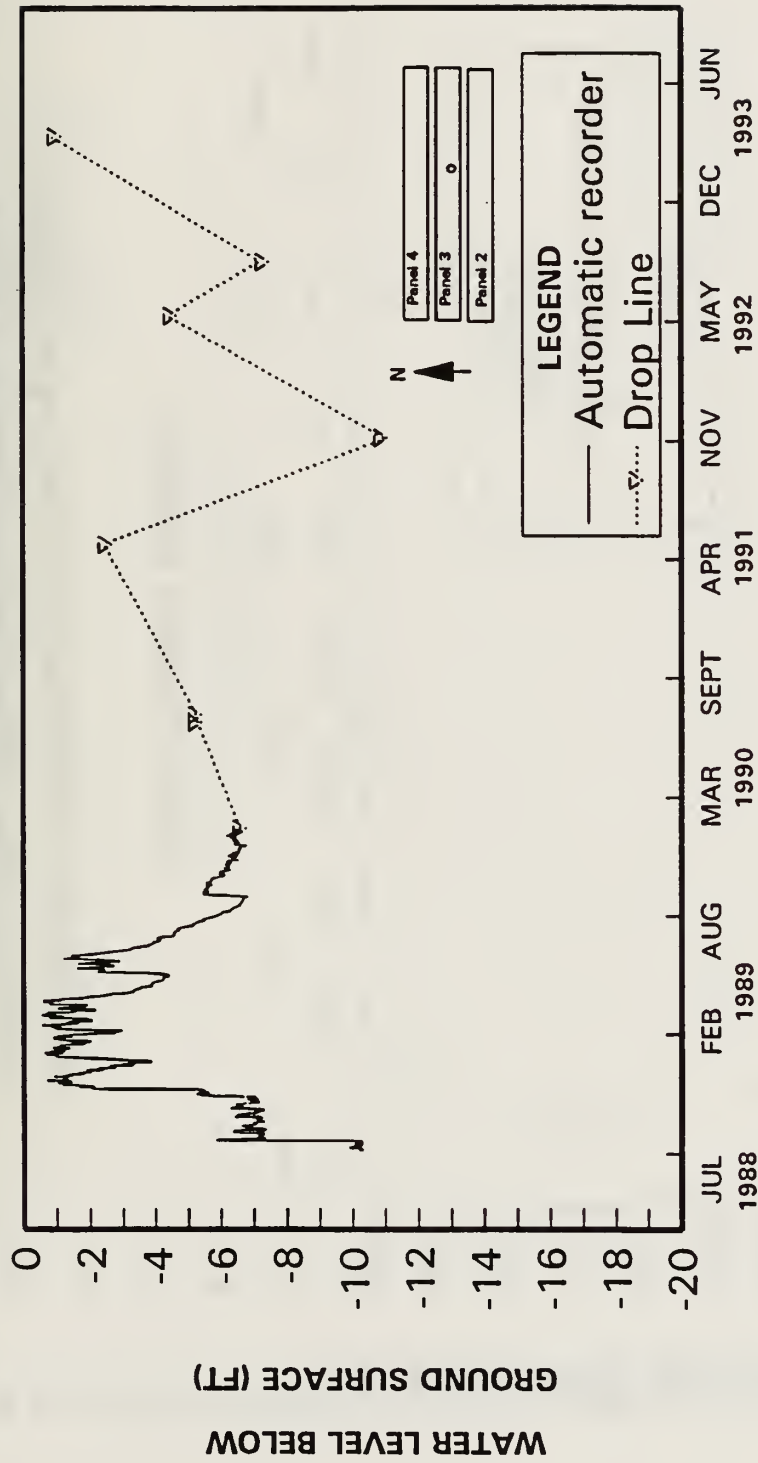
Hydrograph of P202 - Drift Piezometer located over the Centerline of Panel 3

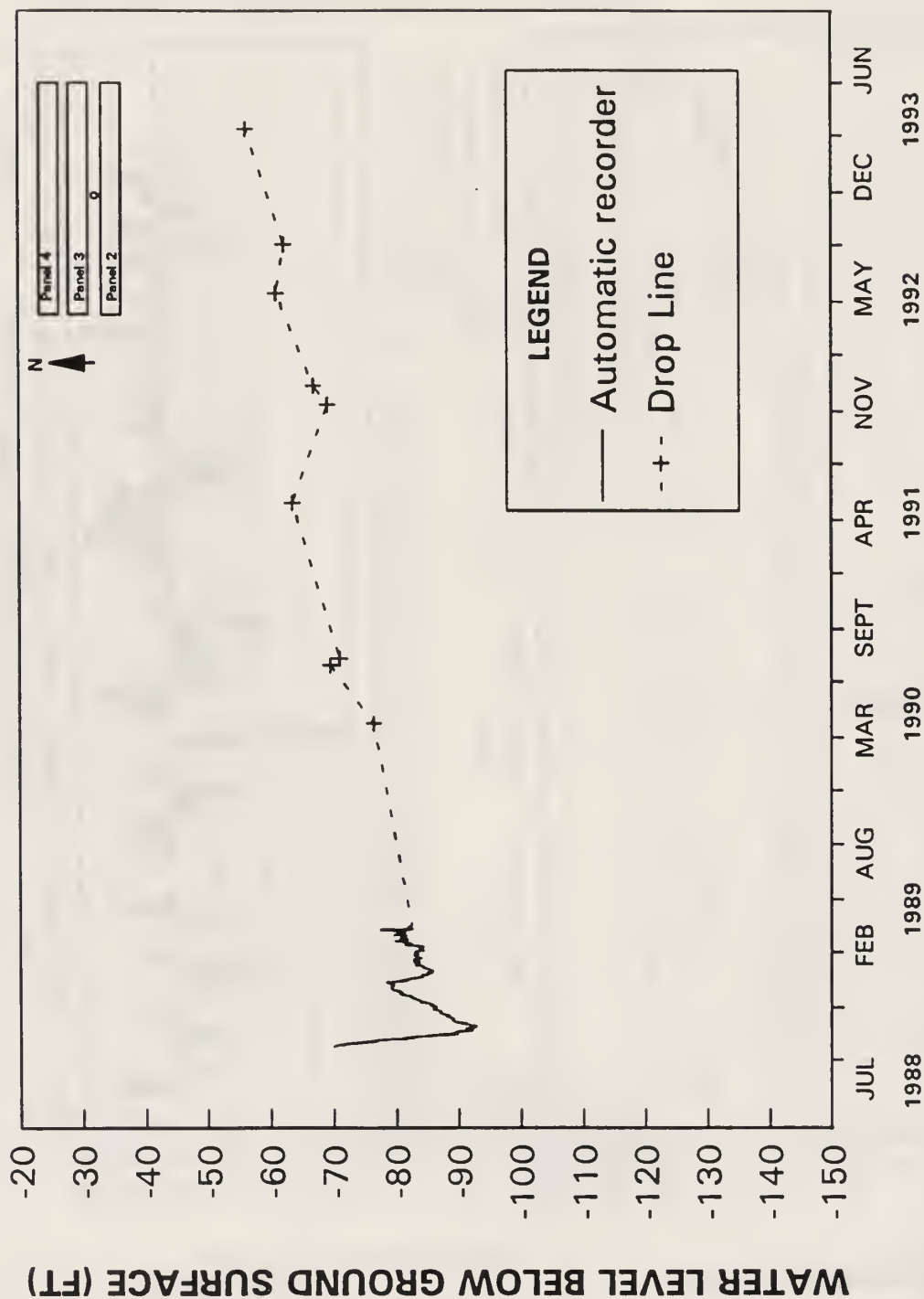


Hydrograph of P203 - Drift Piezometer located
over the Edge of Panel 3

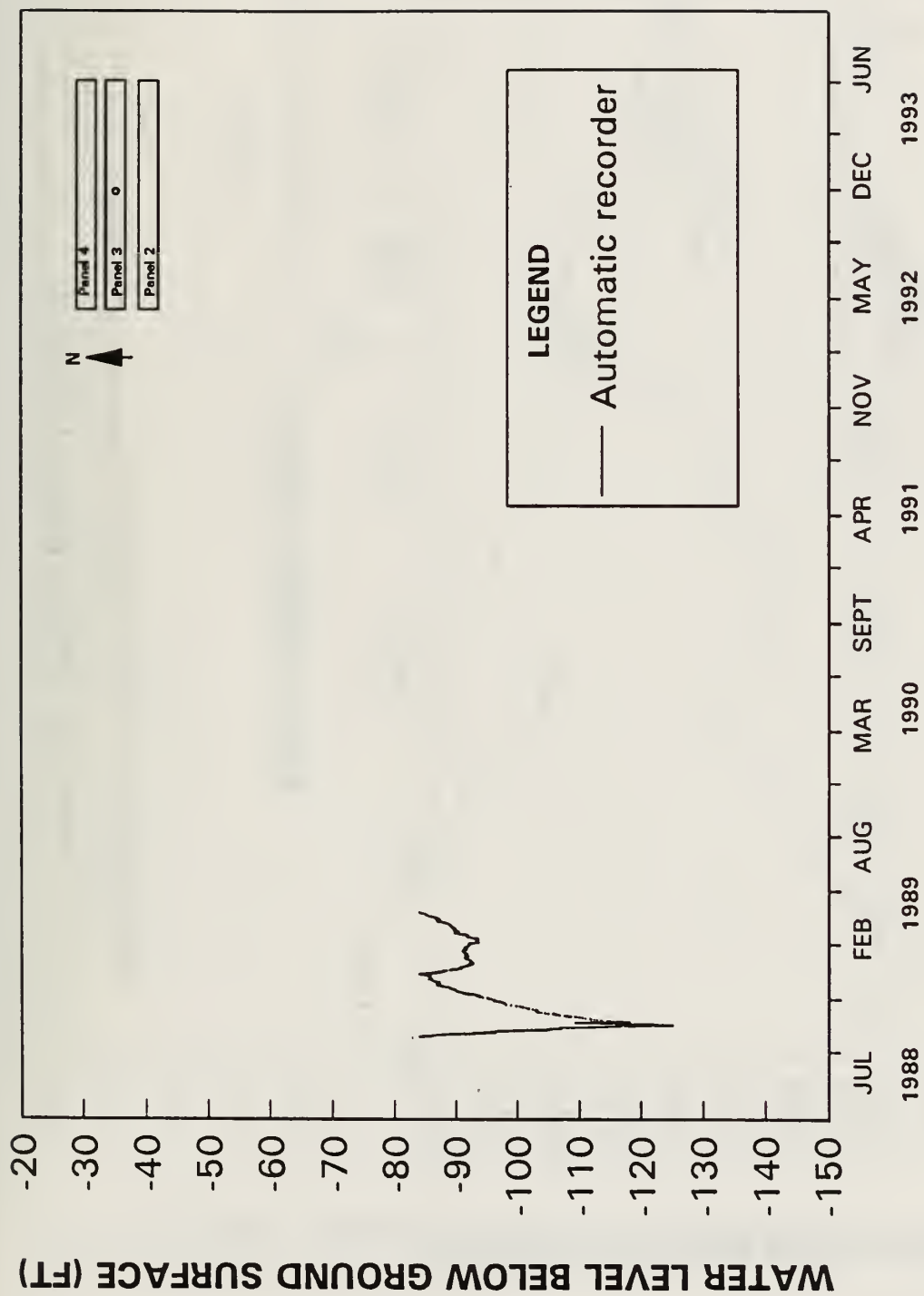


Hydrograph of P204 - Drift Piezometer located over the Chain Pillars Between Panels 2 and 3

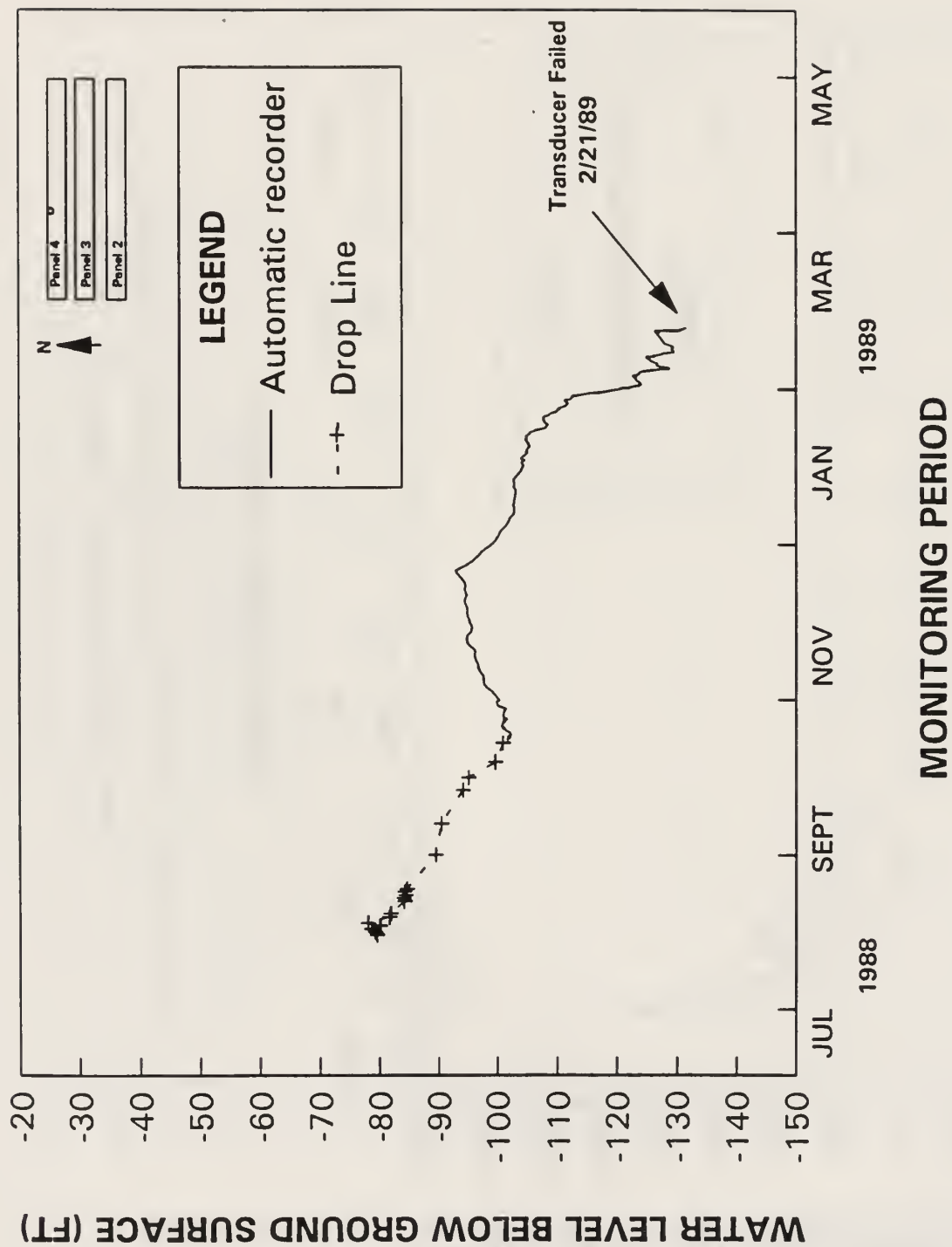




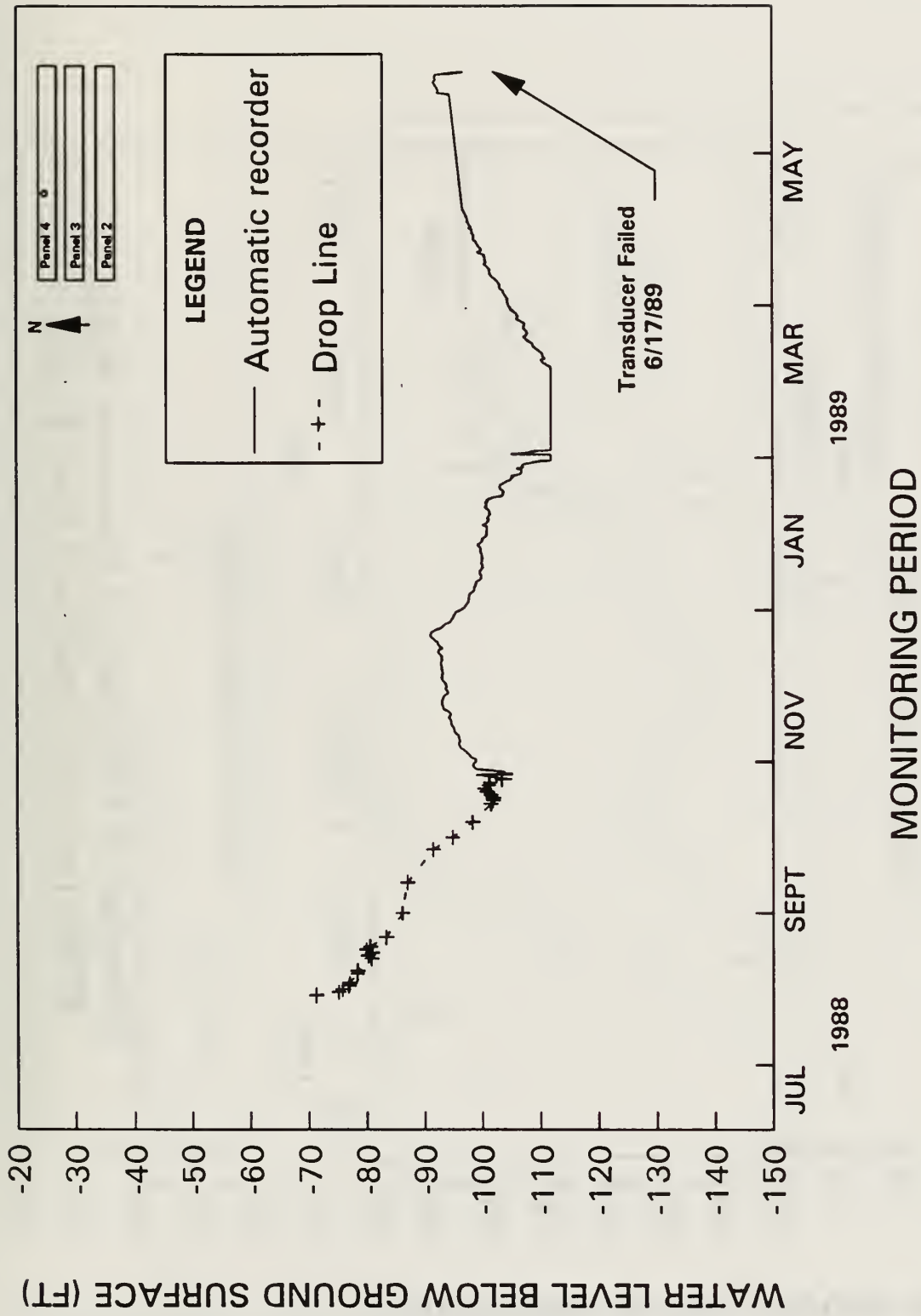
Hydrograph of P300-Bedrock Piezometer located over the Chain Pillars Between Panels 2 and 3



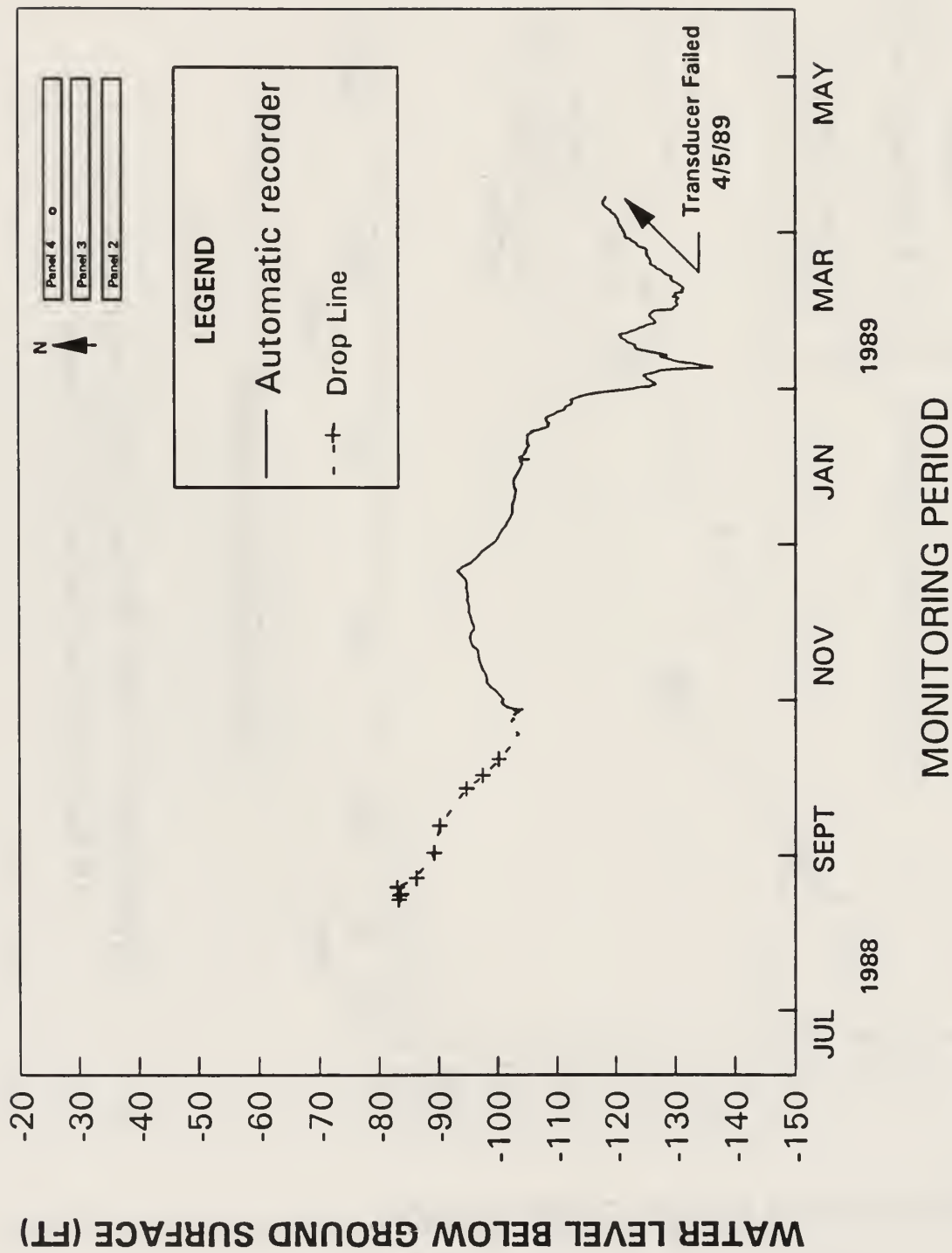
Hydrograph of P301-Bedrock Piezometer located
over the Centerline of Panel 3



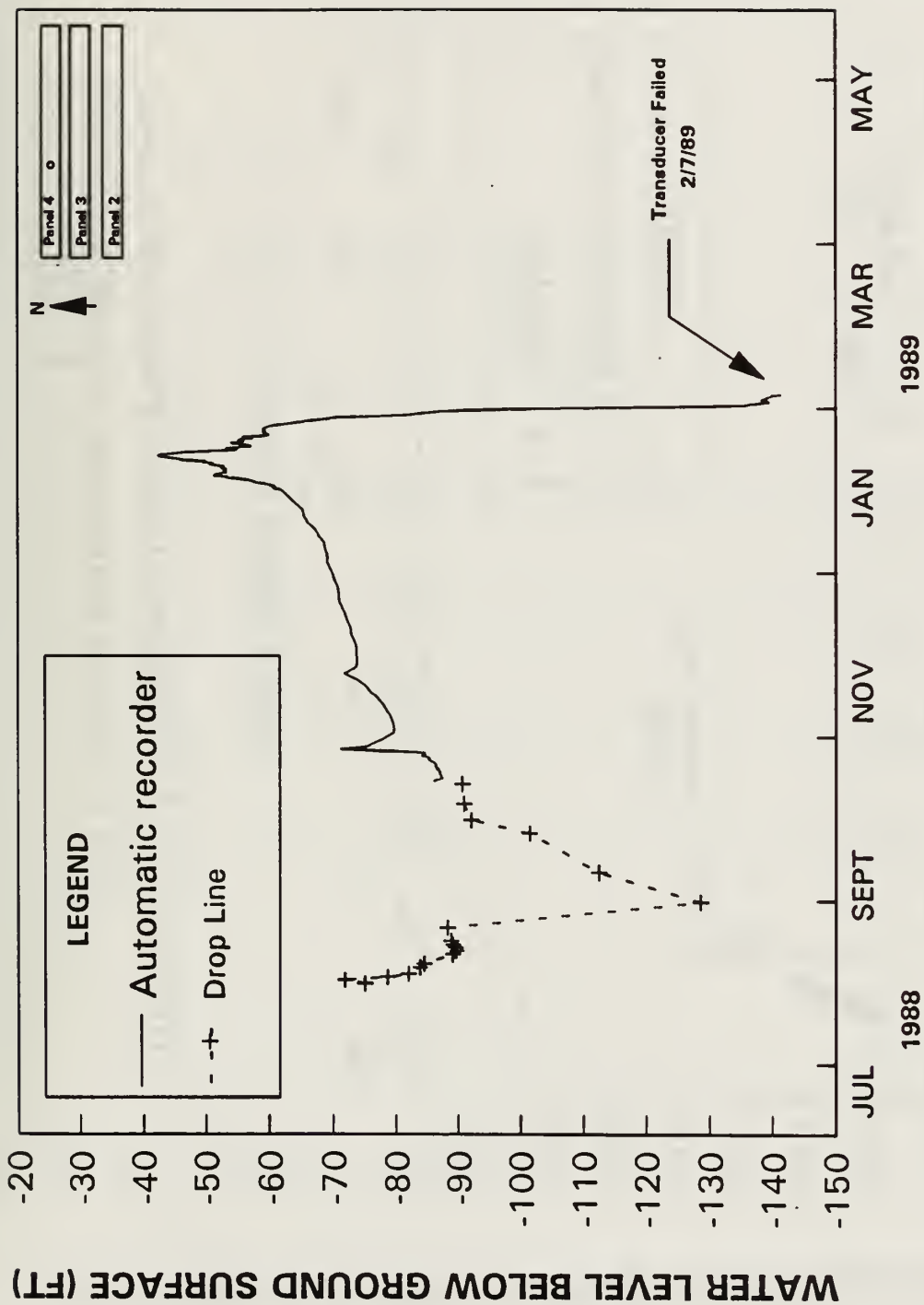
Hydrograph of P302-Bedrock Piezometer located
over the Tension Zone of Panel 4



Hydrograph of P303-Bedrock Piezometer located
55 feet from the Centerline of Panel 4

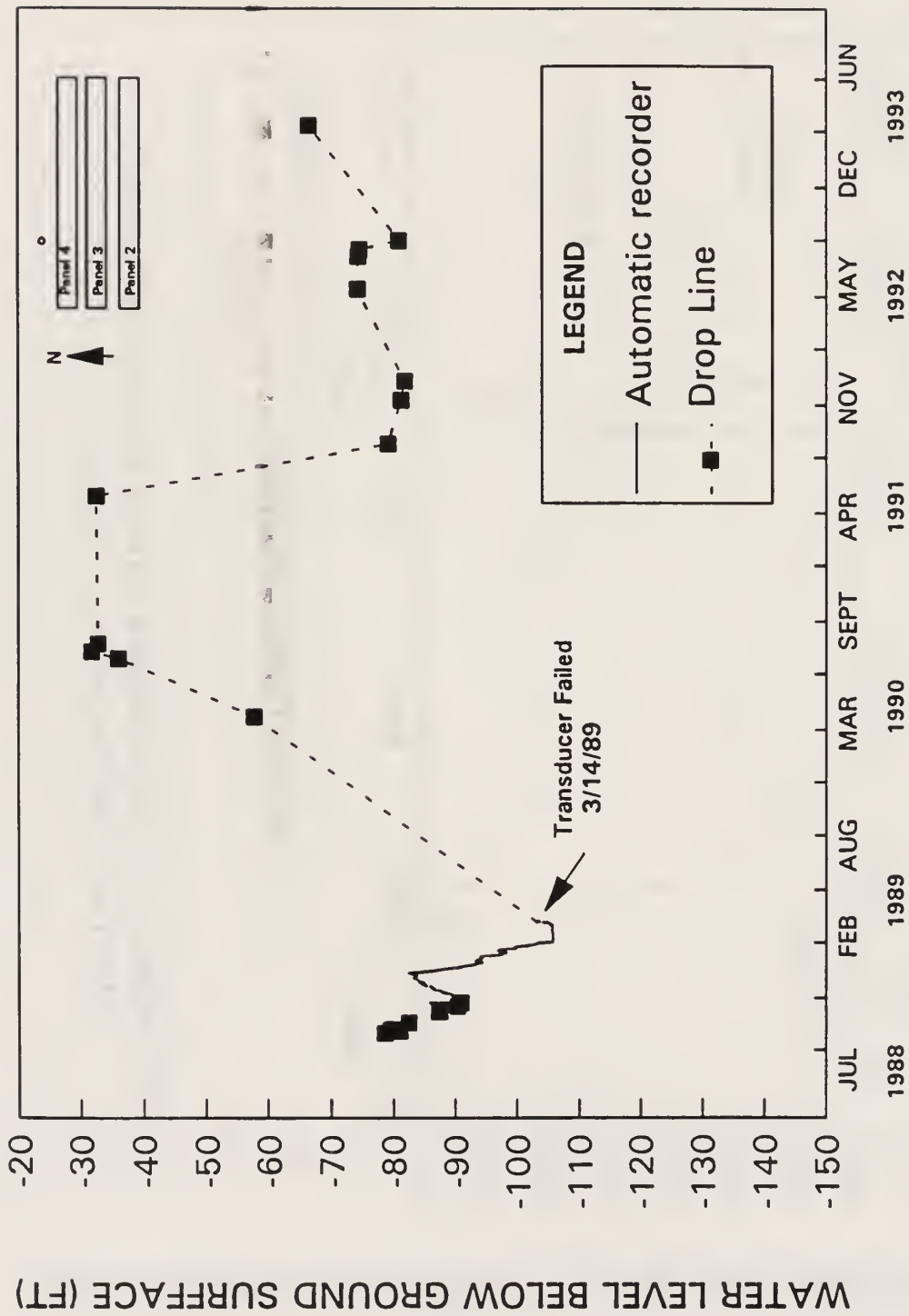


Hydrograph of P304-Bedrock Piezometer located
35 feet from the Centerline of Panel 4

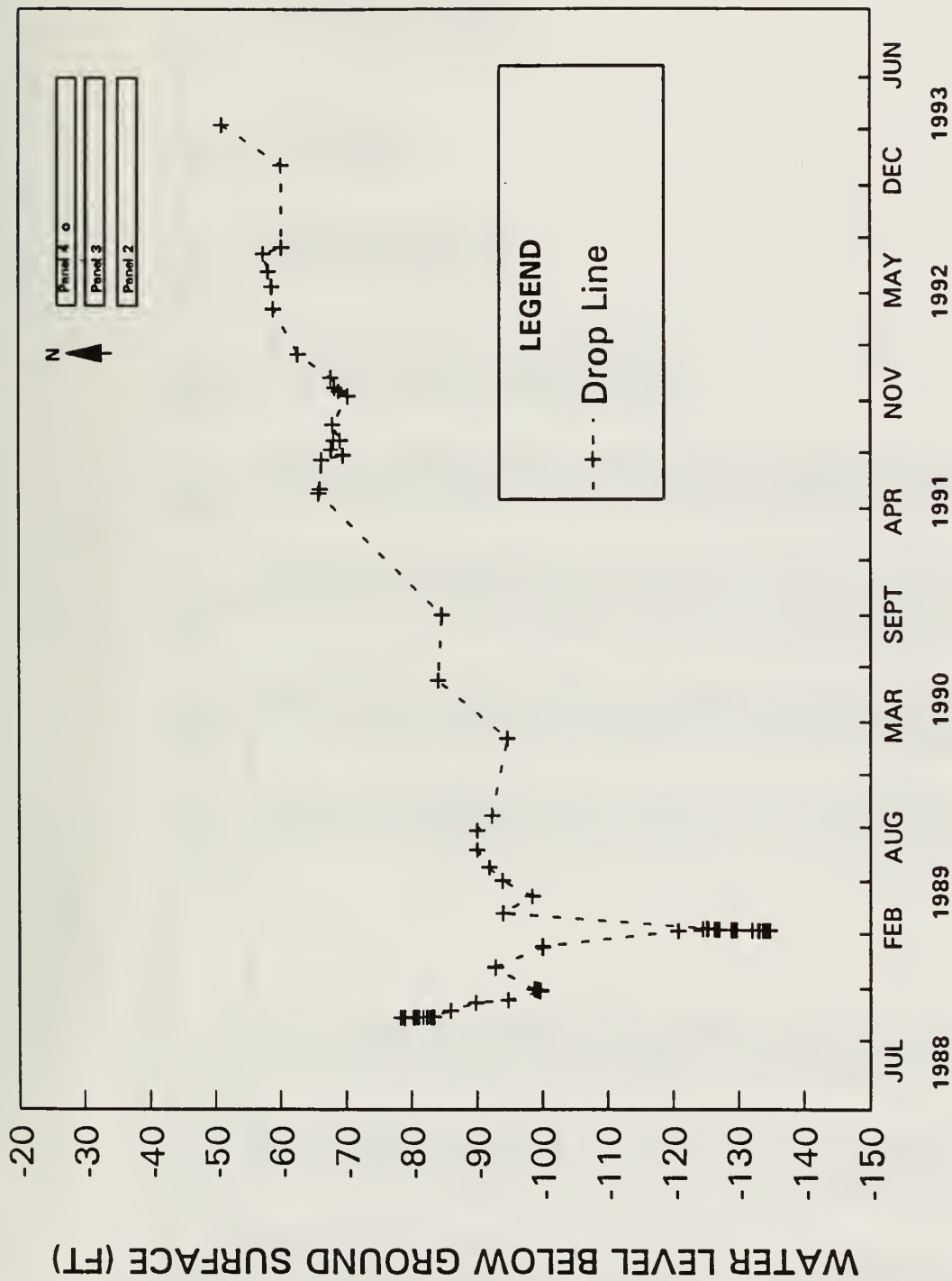


MONITORING PERIOD

Hydrograph of P305-Bedrock (Shale) Piezometer located
20 ft from the Centerline of Panel 4



Hydrograph of P306-Bedrock Control Piezometer located
500 ft from the North edge of Panel 4



Hydrograph of P350-Pump Well located
over the Centerline of Panel 4

APPENDIX L Sondex Data

SOND189.WK1

